SOIL SURVEY

Giles County Tennessee

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
TENNESSEE AGRICULTURAL EXPERIMENT STATION

Issued March 1968

Major fieldwork for this soil survey was done in the period 1961–64. Soil names and descriptions were approved in 1966. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1964. This survey was made cooperatively by the Soil Conservation Service and the Tennessee Agricultural Experiment Station. The contribution of the Soil Conservation Service was part of the technical assistance furnished to the Giles County Soil Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, or other structures; and in appraising the value of tracts of land for agriculture, industry, or recreation.

Locating Soils

All the soils of Giles County are shown on the detailed map at the back of this survey. This map consists of many sheets made from aerial photographs. Each sheet is numbered to correspond with numbers on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by a symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in the publication. This guide lists all of the soils of the county in alphabetic order by map symbol. It shows the page where each kind of soil is described, and also the page for the capability unit, woodland group, and wildlife group in which the soil has been placed.

Individual colored maps showing the relative suitability or degree of limitation of soils for many specific purposes can be developed by using the soil map and the information in the text. Interpretations not included in the text can be developed by grouping soils according to suitability or degree of limitation for a particular use. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the discussions of the interpretative groups.

Foresters and others can refer to the section "Woodland," where the soils of the county are grouped according to their suitability for trees.

Game managers, sportsmen, and others concerned with wildlife will find information of interest in the section "Wildlife and Fish."

Engineers and builders will find under "Soils in Engineering" tables that give descriptions of the engineering properties of the soils in the county and that name soil features that affect engineering practices.

Scientists and others can read about how the soils formed and how they are classified in the section "Formation and Classification of the Soils."

Students, teachers, and others will find information about soils and their management in various parts of the text.

Newcomers in Giles County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the County," which gives additional information about the county.

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Contents

NOTICE TO LIBRARIANS

Series year and series number are no longer shown on soil surveys. See explanation on the next page.

Issued March 1968

EXPLANATION

Series Year and Series Number

Series year and number were dropped from all soil surveys sent to the printer after December 31, 1965. Many surveys, however, were then at such advanced stage of printing that it was not feasible to remove series year and number. Consequently, the last issues bearing series year and number will be as follows:

Series 1957, No. 23, Las Vegas and Eldorado Valleys Area, Nev.
Series 1958, No. 34, Grand Traverse County, Mich.
Series 1959, No. 42, Judith Basin Area, Mont.
Series 1960, No. 31, Elbert County, Colo. (Eastern Part)
Series 1961, No. 42, Camden County, N.J.
Series 1962, No. 13, Chicot County, Ark.
Series 1963, No. 1, Tippah County, Miss.

Series numbers will be consecutive in each series year, up to and including the numbers shown in the foregoing list. The soil survey for Tippah County, Miss., will be the last to have a series year and series number.

SOIL SURVEY OF GILES COUNTY, TENNESSEE

BY J. C. TRUE, J. F. CAMPBELL, AND E. P. DAVIS, SOIL CONSERVATION SERVICE, AND D. L. MONTGOMERY, TENNESSEE AGRICULTURAL EXPERIMENT STATION

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE TENNESSEE AGRICULTURAL EXPERIMENT STATION

GILES COUNTY, in the south-central part of Tennessee (fig. 1), has a land area of 396,160 acres, or 619 square miles. Pulaski, the county seat and principal town, is on Richland Creek, 65 miles south of Nashville.

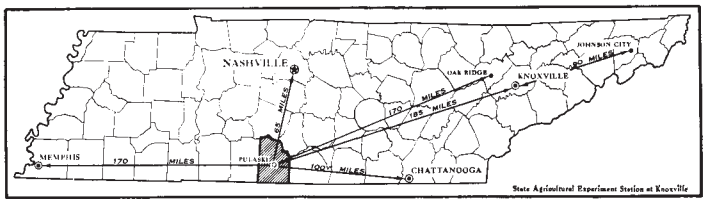

Figure 1.—**Location of Giles County in Tennessee.**

The county is an area of scenic, winding hills and fertile, meandering valleys. The valleys, which make up about one-fourth of the county, consist largely of deep soils that are productive of both crops and pasture. Many of these soils are rich in phosphorus. The hills are made up mostly of cherty or gravelly soils that are productive of pasture and trees but are ordinarily not well suited to cultivated crops. Some of the broader ridgetops and hilltops widen to form plateaus; these are capped with a foot or two of loess, in which soils that are good for farming develop.

General Nature of the County

Giles County, originally a part of Williamson County, was established by an Act of the General Assembly on November 14, 1809. The first permanent settlers came down the Tennessee River by boat to the Elk River and established a community near the mouth of Richland Creek.

The population of the county reached a peak of 29,240 persons in 1940 but has declined since that time. In 1960 the population was 22,410. About 70 percent of the county is rural, and 30 percent is urban.

Pulaski, the county seat, is the main industrial center and the principal market for agricultural products. Located in and around Pulaski are two livestock markets, a dairy, two receiving stations for milk, a cotton gin, and a feed and flour mill. About half of the swine produced in the county are marketed as feeder pigs through local feeder-pig auctions. Other markets for agricultural products are cotton gins at Elkton, Bethel, and Minor Hill, and a cheese plant at Ardmore. In addition to plants for processing agricultural products, there are lumber mills, phosphate strip mines, and limestone quarries in the county. The main industries in and around Pulaski are factories that manufacture shoes, shirts, work pants, tool handles, corrugated boxes, toy tires, and automobile shock absorbers.

Climate [1]

Giles County, like most of Tennessee, has warm summers, relatively mild winters, and abundant rainfall. The county is located well inland from the Atlantic Ocean but lies in the path of warm, moist air moving northward from the Gulf of Mexico and cold, dry air moving southward from Canada. These opposing air currents frequently bring sharp changes in daily weather and are chiefly responsible for the wide variations in weather from one season to another.

The temperature and precipitation data for Lynnville, given in table 1, are generally applicable to the whole of the county.

TEMPERATURE.—The average annual temperature at Lynnville is about 59° F. A temperature above 100° or below 0° is rare, and prolonged periods of very hot or very cold weather are unusual. Many warm spells relieve the cold in winter, and occasional periods of dry, mild weather break stretches of warm, humid weather in summer.

At Lynnville, April 13 is the average date of the last freezing temperature in spring, and October 20 is the average date of the first freezing temperature in fall. The interval between these dates, which is the average growing season, is 190 days. Figure 2 shows the probabilities of the temperature dropping to 32° F., 28°, or 24° after any given date in spring. For example, suppose you wish to find the last date in spring on which the probability of a temperature of 28° or less is 20 percent (2 years in 10). Start with the probability of 20 percent at the top of the graph and follow the vertical line down until it intersects the line labeled 28°. From this point, follow the horizontal line to the left margin and you will see the date is about April 9. In the same manner, you can determine from figure 3 the probability of the specified temperature occurring before any given date in fall.

The growing season is long enough for corn, tobacco, and vegetables to be planted over a period of a few weeks and still have enough time to mature. The winters are

[1] By JOHN VAIKSNORIS, State climatologist, Nashville, Tennessee.

TABLE 1.—*Temperature and precipitation*

[All data from Lynnville, Giles County, Tenn. Elevation 744 feet; latitude 35°20′ N., longitude 87°03′ W.]

Month	Temperature [1]				Precipitation			
	Average daily maximum [2]	Average daily minimum [2]	Two years in 10 will have at least 4 days with—		Average monthly total [4]	One year in 10 will have [4]—		Average depth of snow cover [2]
			Maximum temperature equal to or higher than [3]—	Minimum temperature equal to or lower than [3]—		Less than—	More than—	
	°F.	°F.	°F.	°F.	Inches	Inches	Inches	Inches
January	51. 7	31. 2	68	8	6. 01	2. 3	10. 0	1. 9
February	53. 5	31. 6	71	12	6. 22	2. 2	12. 1	. 9
March	62. 0	38. 2	77	21	6. 07	3. 0	10. 2	. 4
April	70. 9	46. 1	83	36	4. 69	2. 0	7. 3	(5)
May	79. 5	54. 1	90	39	4. 08	1. 9	6. 9	
June	87. 3	62. 8	98	51	3. 60	1. 1	6. 6	(5)
July	89. 7	65. 7	98	59	4. 61	2. 0	8. 5	
August	89. 6	65. 0	98	55	3. 82	1. 4	7. 0	
September	84. 7	57. 8	95	43	3. 25	1. 0	7. 0	
October	75. 3	46. 2	87	29	2. 71	. 5	6. 2	(5)
November	60. 9	36. 3	74	17	4. 64	1. 3	10. 2	. 4
December	52. 4	31. 5	67	13	5. 04	2. 7	9. 9	1. 2
Year	71. 5	47. 2	[6] 100	[6] 4	54. 74	44. 9	68. 3	4. 8

[1] Temperatures referred to in this summary were measured in standard Weather Bureau instrument shelters with thermometer 4.5 feet above the ground. On clear, calm nights temperature at shelter level is usually about 5 degrees warmer than the air temperature near the ground. This difference is sometimes as much as 12 degrees.

[2] Based on records for the period 1931 to 1952.

[3] Based on records for the period 1948 to 1963.

[4] Based on records for the period 1931 to 1960.

[5] Trace.

[6] Average annual extremes in years between 1931 and 1960.

usually mild enough so that most fall-sown small grains survive and provide considerable winter grazing for livestock. There are many days in winter when the temperature is more than 40° and pasture grasses make substantial growth.

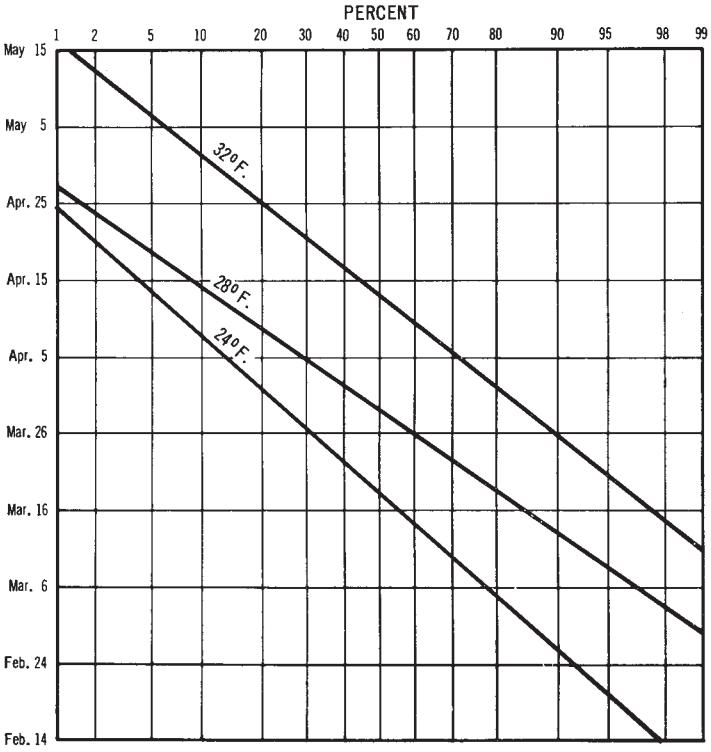

***Figure 2.*—Probability that the temperature at Lynnville will be 32° F., 28°, or 24° after any given date in spring.**

PRECIPITATION.—Giles County usually receives about 55 inches of precipitation annually. In the years between 1931 and 1960, the annual precipitation ranged from 37 inches in 1941 to 72 inches in 1950.

Ordinarily, there is more precipitation in January, February, and March than in other months of the year. Rainfall is lightest in fall. It is relatively light in summer, except in July when local showers and thunderstorms are the most frequent. Table 1 shows that in about 1 year out of 10 rainfall amounts to 2 inches or less during any month of the growing season. The table also shows that in 1 year out of 10 rainfall exceeds normal by about 3 or 4 inches or more in any month of the year. Thus, occasional droughts are offset by periods of moderate to excessive rainfall throughout the year. Heavy local rainstorms bring as much as 4 inches, and sometimes more than 8 inches, of rain. Flooding has often caused considerable damage along creeks (*8*).[2]

WATER BALANCE.—The average water balance, charted for Lynnville, is shown in figure 4. Lines on the chart trace the annual course of average monthly precipitation, potential evapotranspiration, and actual evapotranspiration. Computations were made by the Thornthwaite method (*10*). The available soil moisture at field capacity was assumed to be 4 inches.

Figure 4 shows that there is a surplus of precipitation over evapotranspiration from January through May and that actual evapotranspiration exceeds precipitation from June until near the end of October. During this period, 3.13 inches of the original 4 inches of available water has been lost from the soil. Precipitation again exceeds evapotranspiration by the end of October, and replacement of the soil moisture lost during summer begins. The soil

[2] Italicized numbers in parentheses refer to Literature Cited, p. 67.

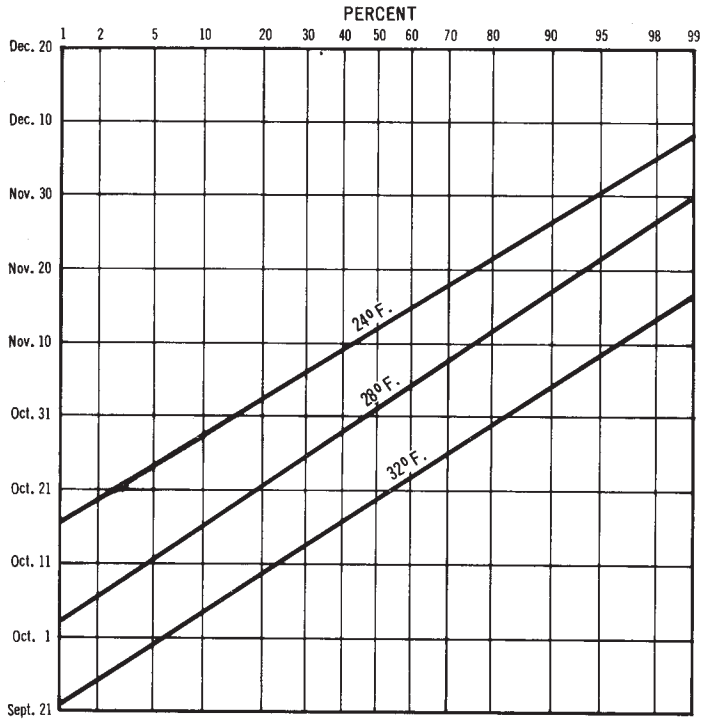

Figure 3.—**Probability that the temperature at Lynnville will be 24° F., 28°, or 32° before any given date in fall.**

reaches field capacity late in November, and again there is a surplus of precipitation over evapotranspiration. The excess precipitation is lost by surface runoff or internal drainage.

The water balance shown in figure 4 is for average conditions at the end of each month, but periods of variation shorter than a month, as well as from year to year, are not shown. The moisture supply during the growing season can vary from too much to too little because of variations in rainfall, temperature, and other factors. The soil moisture varies from field capacity after a good rain to a much lower level after several days with little or no rain.

The rate of plant growth is affected greatly by the amount of available moisture in the soil. The water balance chart shows that precipitation in summer is not normally enough to replace the moisture lost from the soil by evaporation and evapotranspiration. The amount of this moisture deficit indicates the amount of irrigation water needed to maintain maximum plant growth.

Severe Storms.—Severe storms are relatively infrequent in Giles County. Tornadoes have been reported about once in 3 years. The county is too far inland to be damaged by tropical storms. Hailstorms occur once or twice a year in any one place. Thunderstorms occur on about 58 days a year. Windstorms, often associated with thunderstorms, cause scattered local damage in the county a few times each year. Severe snowstorms are infrequent, and snow seldom remains on the ground more than a few days.

Humidity, Wind, and Clouds.—Records of humidity, wind, and cloudiness have not been kept in this county. Based on records from surrounding weather stations, the average annual relative humidity is approximately 70 percent. The annual variation is small; it is highest in winter and lowest in spring. The relative humidity throughout the day usually varies inversely as the temperature, and is, therefore, highest early in the morning and lowest in the afternoon.

The prevailing winds for each month of the year are southerly. The average monthly windspeed varies from about 5 miles per hour in August to about 9 miles per hour in March. Windspeed is 3 miles per hour, or less, about 27 percent of the time, 4 to 12 miles per hour about 57 percent, 13 to 24 miles per hour about 16 percent, and 25 miles per hour or higher less than 1 percent of the time. Windspeed is usually lowest early in the morning and strongest early in the afternoon.

Clouds cover less than six-tenths of the sky, on the average, between sunrise and sunset. Cloud cover for April through October is considerably less than in other months of the year. Overcast days are much less frequent during warm weather, and most clouds are of the cumulus type. Sunshine is abundant during the growing season because of the fewer clouds and the long hours of daylight.

Geology, topography, and drainage

The topography of Giles County is very rough. Its principal features are high, winding ridges and deep, meandering valleys. The underlying rocks are sedimentary, mainly limestone.

The county is divided into three main topographic divisions: the Highland Rim, the Central Basin, and the terraces and bottom lands along Richland Creek and the Elk River. The county lies mostly within the Central Basin, but extends into both the eastern and western parts of the Highland Rim and includes many large remnants of the

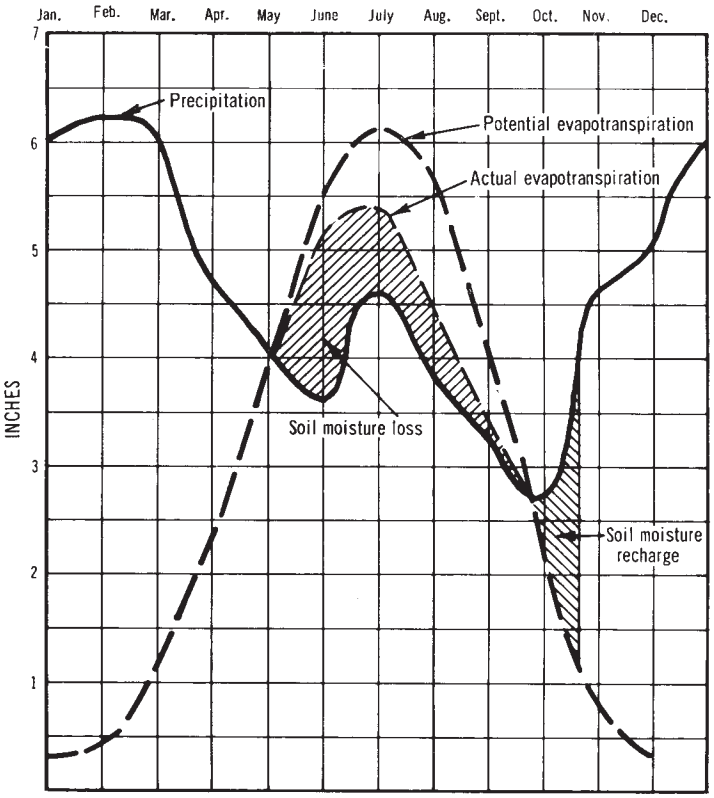

Figure 4.—**The average monthly water balance, at Lynnville, computed from data recorded from 1931 to 1960.**

Highland Rim that technically are classified as part of the Basin area (*9*).

In this county the Highland Rim consists mainly of remnants of a maturely dissected plain. It consists mostly of spurs or ridges that extend throughout the county from broader, flat, undissected parts of the Highland Rim in adjoining counties to the east and west and from Alabama to the south.

Level-bedded, resistant rocks underlie the Highland Rim. Cherty limestone and chert are the main surface rocks. Chattanooga black shale is exposed on many steep slopes. A thin mantle of loess covers most of the broader ridgetops.

The sides of the Highland Rim have a slope of as much as 45 percent. The more nearly level and gently sloping areas are on the broader ridgetops. The elevation of the Highland Rim ranges from about 1,100 feet in the northern part of the county to about 850 feet in the southern part.

The Central Basin is below the level of the surrounding Highland Rim, beginning generally on the middle and lower slopes of the steep hills and extending downward into the valleys along the many streams that dissect the county.

The Central Basin is underlain by limestone that is generally noncherty and is medium to high in phosphorus. In places the limestone yields commercial phosphate.

The elevation of the Central Basin ranges from about 600 feet to 950 feet. The slope is as much as 30 percent. Generally, the steepest areas are the slopes adjoining the Highland Rim, and the more gently sloping areas are the low ridges separating the larger valleys in the county.

The entire county is drained by tributaries of the Elk River, which crosses the southeast corner. The chief of these tributaries is Richland Creek, which flows generally southward, mainly through the central part of the county, and drains all of the county except small areas in the southern and eastern parts.

Nearly level to gently sloping terraces and bottom lands occur along meanders of Richland Creek, the Elk River, and their tributaries. In several places the terraces and bottom lands are underlain by nonphosphatic limestone, but the soils are medium to high in phosphorus, nevertheless. Gently sloping to rolling high stream terraces occur above the level of overflow.

Natural resources

Perennial streams, springs, farm ponds, artificial lakes, and drilled wells provide an adequate supply of water. Springs are abundant in the valleys of the Highland Rim and the upper part of the Central Basin. Springs are less numerous at the lower elevations of the Central Basin and along the valleys of Richland Creek, the Elk River, and their larger tributaries. In these areas, perennial streams, artificial lakes, farm ponds, and wells are the main sources of water.

Brown phosphate, formed by the weathering of phosphatic limestone, is the most abundant mineral deposit in the county. Most deposits underlie the high stream terraces and adjoining uplands along the valleys of Richland Creek, the Elk River, and their tributaries. A small amount of uranium is contained in the Chattanooga shale, which crops out around the fringe and on the flanks of the high hills in the county. Extensive studies, however, indicate that the deposits of uranium are not suitable for commercial mining.

The limestone that underlies all of the county is abundant and easily accessible. Chert, underlying the soils on the high hills throughout the county, is a fair roadbuilding material.

About 30 percent of the county, mainly on steep hillsides of the Highland Rim, is wooded. Most of these areas are covered by heavily cutover upland hardwoods, chiefly oak, hickory, and poplar. Cedars and hardwoods cover most of the very rocky and shallow soils. In the extreme southern part of the county, there are a few native stands of loblolly pine. Many farmers supplement their income by the sale of forest products.

Agriculture

Giles County has been agricultural from the time it was first settled. In 1960 about 70 percent of the population was rural. The Census of Agriculture shows that in 1959 about 75 percent of the farms were operated by their owners and about 24 percent by tenants. Farms in the southern part of the county are mainly cotton, residential, part time, general, and livestock; farms in the northern part are mainly residential, dairy, tobacco, part time, and livestock (*4*).

The largest acreages of farmland are used for corn, hay, small grain, and cotton. Cotton and burley tobacco are the principal cash crops. From 1940 to 1959, the acreage used for corn, cotton, and lespedeza hay decreased, and the acreage of alfalfa, clover hay, and sorghum increased.

Yields of most crops have been increased mainly by increased reliance on soil testing, increased use of fertilizer, and selection of improved hybrids and varieties of seeds and plants. Yields of most crops, especially of corn, cotton, and alfalfa, can be further increased by better use of soil and by improved management.

Annual lespedeza, the principal hay crop, is grown on nearly all of the soils and accounts for about 42 percent of all the hay grown in the county. A common practice is to overseed lespedeza on small grain early in spring, then cut it for hay after the small grain has been harvested. Alfalfa is generally grown on deeper soils and managed at a higher level than other hay crops.

A large acreage is used for pasture, mostly permanent pasture but partly rotation. Much of the pastureland is steep, eroded, shallow, or rocky. Much of the pasture is unimproved, and about 75 percent of the woodland in the county is grazed. The most common permanent-pasture plants are bluegrass, tall fescue, orchardgrass, lespedeza, and white clover. Sudangrass and pearl millet are grown for supplemental pasture on many dairy farms. Small grains are commonly grown for winter and early spring grazing.

Livestock and dairy farming are the most important sources of farm income. The number of livestock farms is increasing; farmers are turning especially to raising hogs as a main enterprise.

How This Soil Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Giles County, where they are located, and how they can be used. They went into the county knowing they likely would find many soils they had already seen and

perhaps some they had not. As they traveled over the county, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; kinds of rock; and many facts about the soils. They dug many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. To use this publication efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Lynnville, for example, is the name of a soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that go with their behavior in the natural, untouched landscape. Soils of one series can differ somewhat in texture of the surface soil and in slope, stoniness, or some other characteristic that affects use of the soils by man.

Many soil series contain soils that differ in the texture of their surface layer. According to such differences in texture, separations called soil types are made. Within a series, all the soils having a surface layer of the same texture belong to one soil type. Mimosa cherty silt loam and Mimosa cherty silty clay are two soil types in the Mimosa series. The difference in texture of their surface layers is apparent from their names.

Some types vary so much in slope, degree of erosion, number and size of stones, or some other feature affecting their use that practical suggestions about their management could not be made if they were shown on the soil map as one unit. Such soil types are divided into phases. The name of a soil phase indicates a feature that affects management. For example, Mimosa cherty silt loam, 12 to 20 percent slopes, is one of several phases of Mimosa cherty silt loam.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map at the back of this report was prepared from aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a soil type or a phase of a soil type. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil type or soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed or occur in such small individual tracts that it is not practical to show them separately on the map. Such a mixture of soils is shown on the map as one mapping unit and called a soil complex. Ordinarily, a soil complex is named for the major kinds of soil in it, for example, Mimosa-Ashwood very rocky complex, 5 to 20 percent slopes. Also, on most soil maps, areas are shown that are so rocky, so shallow, or so frequently worked by wind and water that they scarcely can be called soils. These areas are shown on a soil map like other mapping units, but they are given descriptive names, such as Gullied land or Made land, and are called land types rather than soils.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils. Yields under defined management are estimated for all the soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way that it is readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in soil surveys. On the basis of yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others, then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this report shows, in color, the soil associations in Giles County. A soil association is a landscape that has a distinctive proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in a county, who want to compare different parts of a county, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, stoniness, drainage, and other characteristics that affect management.

In this county there are five associations. These are discussed in the following pages.

1. Mountview-Fullerton-Pickwick association

Brown silty soils and reddish cherty clay soils in undulating and gently rolling areas on the Highland Rim

This association consists mainly of meandering plateaus of the Highland Rim, an area of gently rolling hills surrounding the Central Basin. Some of the highest points in the county are in this association. The topography is mainly gently rolling, but there are moderately steep hills bordering short, crooked drainageways, and there are a few level areas. This association makes up about 8 percent of the county.

Much of the association is capped with loess, as much as 36 inches thick in the more nearly level areas but thinner where the slope is stronger. Underlying the loess is red cherty clay, which formed in material weathered from limestone. The entire association is underlain by limestone bedrock at a depth ranging from about 5 to 30 feet.

Mountview soils make up about 35 percent of this association, Fullerton soils about 20 percent, and Pickwick soils about 10 percent. Mountview and Pickwick soils formed in loess; they are brown and silty. Fullerton soils formed in material weathered from limestone; they are cherty and clayey and are brown or reddish in color. They occur on short side slopes. Minor components of this association are Bodine soils, which are very cherty, and Dickson, Taft, and Guthrie soils, all of which have a fragipan and are moderately well drained to poorly drained.

Practically all of the acreage on the broader ridges has been cleared, but much of it has been replanted to pines. Many of the stronger slopes and wet upland flats are in hardwoods. Food and cover for wildlife are available.

Farming in this association is limited mainly by the slope, the low natural fertility of the soils, and the impeded internal drainage. An average farm is about 90 acres in size. Dairying and row cropping are the main enterprises. Corn and cotton are the principal crops, and cotton is the most important cash crop.

Dickson, Taft, and Guthrie soils present serious hazards in engineering, especially in highway construction. Fragipans, seepage, and impeded or poor drainage affect vertical alinement, cause difficulty in handling earth as a construction material, and make these soils poor foundation material for roads.

2. Bodine-Mountview-Fullerton association

Light-colored cherty soils, brown silty soils, and reddish cherty clay soils on rough broken hills and in deep, narrow hollows of the Highland Rim

This association consists mainly of rough broken hills and deep, narrow hollows of the Highland Rim. Narrow, winding ridges rise about 150 to 200 feet above narrow, V-shaped valleys. The hillsides are about 600 feet long, and the average slope is about 35 percent. Numerous springs near the base of the steep slopes feed the many perennial streams that flow through the valleys. This association makes up about 23 percent of the county.

Bodine soils make up about 40 percent of this association, Mountview soils about 10 percent, and Fullerton soils about 10 percent. Several minor soils make up the rest of the association. Bodine soils occur on steep side slopes and narrow ridgetops. They are light colored and cherty. Mountview soils formed in a thin layer of loess on the broader ridgetops. They are light colored and silty. In many places their surface layer contains chert. Fullerton soils occur mainly on ridgetops but partly on steep side slopes. They are cherty throughout and have a reddish subsoil. Soils of the Lobelville and Greendale series occur along narrow valleys. Where streams have cut deeply, there are narrow strips of Dellrose, Lynnville, and Staser soils along the floors of hollows. Small areas of Pickwick and Dickson soils are on the broader ridges throughout the association.

About 70 percent of this association is in cutover hardwood forest, and the sale of wood products is an important source of income to many farmers. Much of the cleared acreage on ridgetops is idle. In the southeastern part of the association, a fairly large acreage has been planted to pine trees. Food and cover for wildlife are available.

An average farm in this association is about 115 acres in size. Cotton, corn, and lespedeza hay are the main crops. Nearly all of the areas used for crops and pasture are on the broader ridgetops. Feeder pig production is the most important livestock enterprise, but some dairy and beef cattle are raised.

Farming in this association is limited mainly by the steep slopes and the low natural fertility of the soils. The soils suitable for cultivation are mainly in small, narrow fields on ridgetops and along narrow valleys. Most of the steep slopes are suited to trees.

The main limitation in engineering is the slope. The cherty soils in this association provide some of the best material in the county for highway construction.

3. Bodine-Fullerton-Dellrose association

Cherty, light-colored, reddish, and dark-brown soils on high, winding ridgetops and in deep hollows

This association (fig. 5) consists of high, winding ridges with long, steep side slopes and deep hollows. The ridges rise about 200 to 300 feet above the valleys, and the ridgetops range from 50 to 500 feet in width. The slope is about 35 percent on the upper part of the hillsides and about 25 percent on the lower part, which gives the valleys a U-shaped appearance. The side slopes are about 1,000 feet

***Figure 5.*—General view in association 3. Bodine soils occupy the wooded area in the background. Fullerton soils occupy the slopes in the foreground, and Dellrose soils are on the cleared slope below the trees.**

long. There are outcrops of black shale on some of the hillsides. Springs are numerous on these hillsides and along the deep valleys. This association makes up about 10 percent of the county.

Nearly all of this association is made up of soils formed in material weathered from cherty limestone. Bodine soils make up about 30 percent, Fullerton soils about 25 percent, and Dellrose soils about 15 percent. Bodine soils are light colored and cherty; they occur on the upper two-thirds of the steep sides slopes and on the tops of many of the narrow ridges. Fullerton soils are cherty throughout; they have a red, clayey subsoil. They occur mainly on ridgetops, but some areas are on steep side slopes. Dellrose soils formed in cherty colluvium overlying clay weathered from phosphatic limestone; they are dark brown and fertile. They occur on the lower parts of the side slopes, adjoining floors of hollows. Narrow strips of Armour, Staser, Lynnville, Greendale, and Lobelville soils occur on foot slopes and along streams in the valleys. There are small areas of Pickwick and Mountview soils on some of the broader ridgetops.

Nearly all of the acreage on the ridgetops and lower side slopes and in the valleys have been cleared. About 70 percent of the acreage on the upper side slopes is in cut-over hardwoods. In most places much of the cleared acreage is idle. Food and cover for wildlife are available.

An average farm in this association is about 100 acres in size. Crops are grown mainly in small fields on ridgetops and along streams in the valleys. Cotton, corn, and hay are the main crops. Dairy and beef cattle are livestock enterprises on a few farms. Many of the farmers supplement their income by part-time or full-time work off the farm.

Farming in this association is limited mainly by the slope and the low natural fertility of most of the soils. Trees grow well on most of the steep hillsides. Good stands of pasture and hay can be grown on the foot slopes and in the valleys, and cultivated crops can be grown where the areas are not too steep. If enough lime and fertilizer are used, fair to good yields of most crops can be produced from the soils on ridgetops, and fair to good stands of pasture can be established.

The main limitations in highway construction are the steep hills and the slowly permeable clay underlying the Dellrose soils. The Dellrose soils are likely to slip and slide if deep cuts and fills are made. Most of the other soils provide good material for roadbuilding.

4. Dellrose-Bodine-Mimosa association

Cherty and rocky, dark-brown, light-colored, and brown soils on steep slopes, ridgetops, and low-lying knobs, and in deep hollows

This association (fig. 6) consists of high cherty ridges, steep side slopes, and deep hollows. Narrow, winding ridges rise about 200 to 300 feet above the valleys. The side slopes are about 1,000 feet long, and the gradient is generally about 30 percent. The valleys are mainly V-shaped at the head, but they widen near large creeks or streams. This association makes up about 27 percent of the county.

Dellrose soils make up about 25 percent of this association, Bodine soils about 20 percent, and Mimosa soils about 20 percent. Dellrose soils formed in cherty creep, generally underlain by yellowish clay weathered from phosphatic limestone; they are dark brown and fertile.

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***Figure 6.*—General view in association 4. Bodine soils occupy the wooded hilltop. Dellrose soils occupy the cleared slope at the left of the picture, and Mimosa soils occupy the foot slopes. The rock outcrops in the area of Mimosa soils are limestone. Armour soils are in the foreground.**

They occur on long, steep side slopes. Bodine soils occur on cherty, steep upper slopes and ridgetops. They are light colored and cherty. Mimosa soils occur on foot slopes of steep hills and on low-lying knobs. Most areas of these soils have a thin surface layer of cherty silt loam or silty clay loam. Outcrops of limestone are numerous in some places. Fairly large areas of Rockland and of soils of the Braxton and Ashwood series occur on the less steep hills and knobs. Narrow bands of Armour, Staser, Lynnville, and Godwin soils occur on foot slopes and in the valleys.

Most of the steep hillsides and ridgetops are cleared and used mainly for pasture. Most of the rocky areas and steep upper slopes are in hardwoods. Fenceposts and small amounts of lumber are harvested.

An average farm in this association is about 125 acres in size. Nearly all of the crops are grown in small fields on foot slopes and in narrow valleys. Feeder pig production is an important enterprise throughout the association. In the northern part of the county, the main farm enterprises in this association are dairying and general livestock production. (See figure 7.) Tobacco is an important

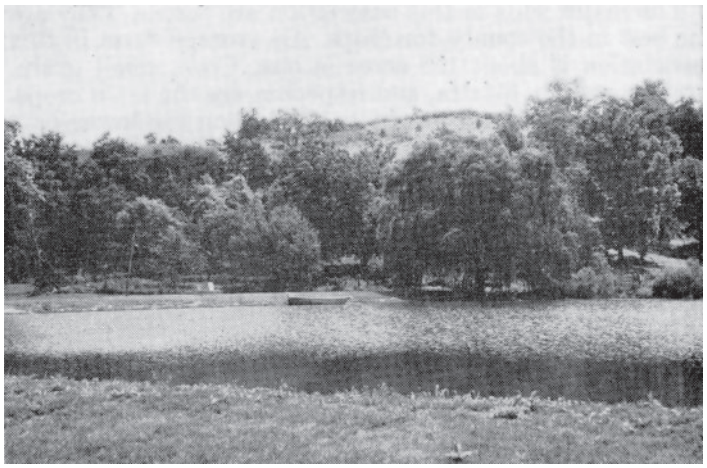

***Figure 7.*—Farm pond in association 4; it supplies water for livestock and provides recreational opportunities.**

cash crop. In the southern part of the association, cotton is the most important cash crop, but corn is also grown. Beef cattle and dairy cattle are livestock enterprises on some of the farms.

Farming in this association is limited mainly by the steep slopes. Good stands of pasture can be established on the hillsides, but seedbed preparation, application of lime and fertilizer, and mowing are difficult. Trees grow well.

Engineering limitations, especially in highway construction, are serious. The soils on steep slopes are likely to slip and slide if cuts are made in the hillsides. Most deep cuts require excavation of several feet of massive limestone.

5. Staser-Armour-Maury association

Phosphatic, brown and dark-brown soils of bottom lands and stream terraces along Richland Creek and the Elk River and their tributaries

This association consists of bottom lands, terraces, and adjoining uplands along Richland Creek, the Elk River, and their larger tributaries. The bottom lands are nearly level; they occur in strips 100 feet to a mile in width. The low stream terraces are nearly level to rolling and are 2 to 20 feet higher than the bottom lands. The high stream terraces and uplands are gently rolling to hilly and are generally 50 to 100 feet higher than the bottom lands. This association makes up about 32 percent of the county.

Staser soils make up about 20 percent of the association, Armour soils about 16 percent, and Maury soils about 10 percent. Several minor soils make up the rest of the association. Staser soils formed in recent alluvium; they occur on first bottoms, along small drainageways, and in depressions. They are dark brown, deep, and well drained. Armour soils occur on low stream terraces and upland toe slopes. They are brown, deep, well drained, and productive. Maury soils are on uplands and high stream terraces. They are dark brown, deep, and well drained. The minor soils are moderately well drained to poorly drained soils of bottom lands and rocky, cherty, or clayey soils of uplands, in about equal proportions.

Nearly all of this association is used for crops, hay, and pasture. The only wooded areas are rocky uplands and a few swampy areas on bottom lands. Trees and shrubs grow well. On most farms some places can be maintained as wildlife habitats.

The major soils in this association are fertile. They are the best in the county for crops. An average farm in this association is about 150 acres in size. Corn, small grain, grain sorghum, alfalfa, and lespedeza are the main crops. Cotton is a cash crop in the valleys along the lower part of Richland Creek and along the Elk River. Tobacco is a cash crop in the upper part of the Richland Creek valley. Dairy cows, beef cattle, and hogs are the main kinds of livestock.

Farming in this association is limited mainly by rockiness in some upland areas, a fragipan in some of the soils on terraces, and impeded or poor natural drainage in some of the soils on flood plains.

Descriptions of the Soils

This section describes the soil series and mapping units of Giles County. The approximate acreage and proportionate extent of each mapping unit are given in table 2.

In the pages that follow, a general description of each soil series is given. The series description is followed by a detailed description of a profile representative of the series and a brief statement of the range in characteristics of the soils in the series, as mapped in this county. Each mapping unit is then described individually. Miscellaneous land types, such as Gullied land, are described in alphabetic order along with the soil series.

Following the name of each mapping unit is a symbol in parentheses. This symbol identifies the mapping unit on the detailed soil map. Listed at the end of the description of each mapping unit are the capability unit, the woodland group, and the wildlife group in which the mapping unit has been placed. The page on which each of these interpretive groups is described can be found readily by referring to the "Guide to Mapping Units," which is at the back of this publication.

For more general information about the soils, the reader can refer to the section "General Soil Map," in which the broad patterns of soils are described. Many of the terms used in the soil descriptions and other sections of the report are defined in the Glossary.

Armour Series

The Armour series consists of deep, well-drained soils, mainly on stream terraces and at the base of slopes in the outer part of the Central Basin. These soils developed in sediments that washed or drifted downslope from nearby soils derived from phosphatic limestone. The slope range is 0 to 12 percent.

Armour soils typically have a surface layer of dark-brown silt loam and a subsoil of brown or reddish-brown silty clay loam.

These soils are naturally fertile and are among the most productive in the county. They are high in phosphorus and are medium acid to strongly acid. They have a high available water capacity. Roots penetrate to a depth of at least 3 feet. Tillage is easy. The response to lime and fertilizer is good, and yields are high.

Representative profile of Armour silt loam, 2 to 5 percent slopes, about 2 miles southwest of Elkton and about 100 feet north of a private lane:

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; moderate, fine, granular structure; very friable; common fine roots; medium acid; abrupt, smooth boundary.

B1—8 to 17 inches, brown (7.5YR 4/4) silty clay loam; weak, medium, subangular blocky structure; friable; few fine roots; medium acid; clear, smooth boundary.

B21t—17 to 24 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; thick clay films; few, small and medium, black and dark-brown concretions; medium acid; clear, smooth boundary.

B22t—24 to 32 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; patchy clay films; few, small, black and dark-brown concretions; medium acid; gradual, wavy boundary.

B23t—32 to 50 inches, brown (7.5YR 4/4) silty clay loam with common, medium, distinct mottles of yellowish brown; moderate, medium, subangular blocky structure; friable; patchy clay films; few to common, small and medium, black and dark-brown concretions; medium acid.

The A horizon ranges from dark brown (10YR 3/3) through very dark grayish brown (10YR 3/2). The B horizon ranges from brown through strong brown and

TABLE 2.—*Approximate acreage and proportionate extent of the soils*

Soil	Acres	Percent
Armour silt loam, 0 to 2 percent slopes	5, 983	1. 5
Armour silt loam, 2 to 5 percent slopes	11, 727	3. 0
Armour silt loam, 5 to 12 percent slopes, eroded	3, 980	1. 0
Ashwood silty clay loam, 5 to 12 percent slopes	445	. 1
Ashwood silty clay loam, 12 to 20 percent slopes	325	. 1
Bodine cherty silt loam, 5 to 20 percent slopes	19, 668	5. 0
Bodine cherty silt loam, 20 to 45 percent slopes	58, 047	14. 6
Braxton cherty silt loam, 2 to 5 percent slopes, eroded	854	. 2
Braxton cherty silt loam, 5 to 12 percent slopes, eroded	3, 213	. 8
Braxton cherty silt loam, 12 to 20 percent slopes, eroded	2, 015	. 5
Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	2, 476	. 6
Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded	2, 181	. 6
Braxton silty clay loam, 5 to 12 percent slopes, severely eroded	4, 162	1. 0
Braxton silty clay loam, 12 to 20 percent slopes, severely eroded	829	. 2
Culleoka loam, 5 to 12 percent slopes, eroded	303	. 1
Culleoka loam, 5 to 12 percent slopes, severely eroded	230	. 1
Culleoka loam, 12 to 20 percent slopes, eroded	721	. 2
Culleoka loam, 12 to 20 percent slopes, severely eroded	874	. 2
Culleoka loam, 20 to 35 percent slopes	679	. 2
Culleoka loam, 20 to 35 percent slopes, severely eroded	463	. 1
Culleoka flaggy loam, 15 to 35 percent slopes	689	. 2
Dellrose cherty silt loam, 2 to 5 percent slopes	2, 450	. 6
Dellrose cherty silt loam, 5 to 12 percent slopes	7, 237	1. 8
Dellrose cherty silt loam, 5 to 12 percent slopes, severely eroded	891	. 2
Dellrose cherty silt loam, 12 to 20 percent slopes	9, 941	2. 5
Dellrose cherty silt loam, 12 to 20 percent slopes, severely eroded	1, 048	. 3
Dellrose cherty silt loam, 20 to 30 percent slopes	23, 389	5. 9
Dellrose cherty silt loam, 20 to 30 percent slopes, severely eroded	2, 411	. 6
Dellrose cherty silt loam, 30 to 45 percent slopes	5, 619	1. 4
Dellrose coarse cherty silt loam, 12 to 20 percent slopes	389	. 1
Dellrose coarse cherty silt loam, 20 to 45 percent slopes	2, 158	. 5
Dickson silt loam, 2 to 5 percent slopes	2. 363	. 6
Donerail silt loam, 2 to 5 percent slopes	1, 110	. 3
Dowellton silt loam	591	. 1
Etowah cherty silt loam, 5 to 12 percent slopes	512	. 1
Etowah cherty silt loam, 12 to 20 percent slopes	354	. 1
Fullerton cherty silt loam, 12 to 20 percent slopes	2, 991	. 8
Fullerton cherty silt loam, 2 to 5 percent slopes	2, 059	. 5
Fullerton cherty silt loam, 5 to 12 percent slopes	20, 919	5. 3
Fullerton cherty silt loam, 20 to 30 percent slopes	1, 998	. 5
Fullerton cherty silt loam, 30 to 40 percent slopes	2, 822	. 7
Fullerton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	1, 193	. 3
Fullerton cherty silty clay loam, 12 to 20 percent slopes, severely eroded	682	. 2
Fullerton cherty silty clay loam, 20 to 30 percent slopes, severely eroded	374	. 1
Godwin silt loam	8, 603	2. 2
Greendale silt loam	669	. 2
Greendale cherty silt loam	1, 819	. 5
Gullied land	5, 098	1. 3
Guthrie silt loam	479	. 1
Hampshire silt loam, 3 to 12 percent slopes, eroded	426	. 1
Hampshire silt loam, 12 to 20 percent slopes, eroded	253	0. 1
Humphreys cherty silt loam, 2 to 5 percent slopes	196	. 1
Humphreys cherty silt loam, 5 to 12 percent slopes	357	. 1
Inman silty clay, 10 to 25 percent slopes, severely eroded	451	. 1
Lanton silt loam	3, 807	1. 0
Lee silt loam	215	. 1
Lobelville cherty silt loam	2, 128	. 5
Lobelville silt loam	608	. 2
Lynnville cherty silt loam	9, 480	2. 4
Lynnville silt loam	11, 246	2. 8
Made land	351	. 1
Maury silt loam, 2 to 5 percent slopes	6, 874	1. 7
Maury silt loam, 5 to 12 percent slopes, eroded	4, 018	1. 0
Maury silt loam, 12 to 20 percent slopes, eroded	277	. 1
Mercer silt loam, 0 to 2 percent slopes	2, 272	. 6
Mercer silt loam, 2 to 5 percent slopes	1, 164	. 3
Mercer silt loam, 2 to 5 percent slopes, eroded	2, 068	. 5
Mimosa silt loam, 4 to 12 percent slopes, eroded	1, 189	. 3
Mimosa silt loam, 12 to 20 percent slopes, eroded	518	. 1
Mimosa cherty silt loam, 5 to 12 percent slopes, eroded	1, 827	. 5
Mimosa cherty silt loam, 12 to 20 percent slopes	4, 134	1. 0
Mimosa cherty silt loam, 20 to 30 percent slopes	7, 954	2. 0
Mimosa cherty silty clay, 5 to 20 percent slopes, severely eroded	3, 386	. 9
Mimosa cherty silty clay, 20 to 30 percent slopes, severely eroded	3, 464	. 9
Mimosa silty clay, 5 to 20 percent slopes, severely eroded	656	. 2
Mimosa-Ashwood very rocky complex, 5 to 20 percent slopes	5, 982	1. 5
Mimosa-Ashwood very rocky complex, 20 to 40 percent slopes	6, 094	1. 5
Mine pits and dumps	1, 265	. 3
Mined land, reclaimed	373	. 1
Mountview silt loam, 2 to 5 percent slopes	4, 339	1. 1
Mountview silt loam, 5 to 12 percent slopes, eroded	477	. 1
Mountview cherty silt loam, 2 to 5 percent slopes	4, 808	1. 2
Mountview cherty silt loam, 5 to 12 percent slopes	10, 781	2. 7
Mountview cherty silt loam, 5 to 12 percent slopes, severely eroded	795	. 2
Newark silt loam	2, 547	. 6
Pickwick silt loam, 2 to 5 percent slopes	3, 279	. 8
Pickwick silt loam, 5 to 12 percent slopes, eroded	741	. 2
Pickwick silt loam, 5 to 12 percent slopes, severely eroded	257	. 1
Rockland	15, 627	3. 9
Roellen silty clay loam	2, 555	. 6
Settling basins	269	. 1
Staser cherty silt loam	12, 017	3. 0
Staser silt loam	16, 922	4. 3
Stiversville silt loam, 5 to 12 percent slopes, severely eroded	1, 558	. 4
Taft silt loam	604	. 2
Talbott silt loam, 2 to 5 percent slopes, eroded	396	. 1
Talbott silt loam, 5 to 12 percent slopes, eroded	537	. 1
Talbott silty clay, 3 to 12 percent slopes, severely eroded	828	. 2
Talbott very rocky complex, 2 to 20 percent slopes	891	. 2
Tupelo silt loam	843	. 2
Woolper silty clay loam	2, 023	. 5
Total	396, 160	100. 0

reddish brown. In places the B horizon is clayey below a depth of 20 inches.

Armour silt loam, 0 to 2 percent slopes (ArA).—The surface layer of this soil is dark-brown, friable silt loam 10 to 15 inches thick. The subsoil consists of brown or reddish-brown, friable silty clay loam. In a few places this soil is ponded occasionally.

This soil is high in phosphorus and is medium acid to strongly acid. It has a high available water capacity. The root zone is deep. Crops respond extremely well to good management, and yields are high. (Capability unit I–1; woodland group 2; wildlife group 2)

Armour silt loam, 2 to 5 percent slopes (ArB).—This soil is mainly on stream terraces, toe slopes, and fans, but a few of the areas are on broad, gently rolling ridgetops. The surface layer is dark-brown, friable silt loam 6 to 12 inches thick. The subsoil consists of brown, friable silty clay loam. The slope ranges from 2 to 5 percent but is dominantly 2 to 3 percent. The depth to bedrock ranges from about 5 feet to about 15 feet. In places the soil is gravelly or cherty below a depth of 3 feet.

This soil is high in phosphorus and is medium acid to strongly acid. It has a high available water capacity. The root zone is deep. Crops respond extremely well to applications of fertilizer and lime and other good management practices. Yields are high. (Capability unit IIe–1; woodland group 2; wildlife group 2)

Armour silt loam, 5 to 12 percent slopes, eroded (ArC2).—This soil is on short upland slopes, on stream terraces, and on foot slopes. The surface layer is dark-brown, friable silt loam 6 inches thick, and the subsoil is brown silty clay that is well-aerated, soft, and easily penetrated by roots and water. Some of the areas on upland slopes have a few slabs of phosphatic sandstone on the surface and throughout the soil. A few areas on terraces and foot slopes have a substantial amount of chert or gravel below a depth of 3 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has a high available water capacity. Crops respond well to management, and yields are high. The main limitation is the slope. (Capability unit IIIe–1; woodland group 2; wildlife group 2)

Ashwood Series

The Ashwood series consists of well drained or moderately well drained soils that developed in material weathered from phosphatic limestone. These soils occur in the outer part of the Central Basin. They are moderately deep over bedrock and have a few outcrops of rock. In many places they adjoin very rocky soils. The slope range is 5 to 20 percent.

Ashwood soils typically have a surface layer of dark-colored silty clay loam and a yellowish-brown, plastic, clayey subsoil.

These soils are medium to high in phosphorus. They are slightly acid to mildly alkaline and do not need lime. They have a medium available water capacity.

About half of the acreage is in forest. Cleared areas are used mainly for pasture. These soils are poorly suited to cultivated crops because of the slope and the clayey subsoil. Yields of small grain, hay, and pasture are fair to high.

Representative profile of Ashwood silty clay loam, 5 to 12 percent slopes, about 1 mile northwest of Elkton and about 100 yards west of Bunker Hill Road:

Ap—0 to 5 inches, very dark gray (10YR 3/1) silty clay loam; moderate, fine and medium, granular structure; friable; many fine roots; common, small, black and dark-brown concretions; neutral; clear, smooth boundary.

A12—5 to 10 inches, very dark gray (10YR 3/1) or very dark grayish-brown (10YR 3/2) silty clay loam; few, fine, faint mottles of dark grayish brown and olive brown; moderate, medium and coarse, granular and angular blocky structure; firm; common fine roots; common, small and medium, black and dark-brown concretions; neutral; clear, wavy boundary.

B1t—10 to 14 inches, light olive-brown (2.5Y 5/4) clay with common, fine and medium, distinct mottles of olive, pale brown, and very dark grayish brown; strong, medium and coarse, angular blocky structure; firm; few fine roots; patchy, thin clay films; few small fragments of weathered limestone; common, small and medium, black and dark-brown concretions; slightly acid; clear, wavy boundary.

B21t—14 to 20 inches, yellowish-brown (10YR 5/6) clay; common medium and fine mottles of light olive brown, light yellowish brown, and pale brown; weak, coarse, angular blocky structure; very firm; few clay films; few fine roots; few slabs of weathered limestone 2 to 6 inches thick; many, small and medium, dark-brown and black concretions; slightly acid; clear, wavy boundary.

B22t—20 to 26 inches, light olive-brown (2.5Y 5/4) clay with common, fine and medium, distinct mottles of pale olive, olive, and grayish brown; weak, coarse, angular blocky structure; very firm; few clay films; common slabs of weathered limestone 3 to 10 inches thick; many, small, dark-brown, black, and yellowish-brown concretions; mildly alkaline.

R—26 inches +, phosphatic limestone bedrock.

The A horizon ranges from very dark grayish brown (10YR 3/2) through very dark gray (10YR 3/1) and black (10YR 2/1) in color, and from 10 to 14 inches in thickness. The depth to phosphatic limestone bedrock is generally about 2 feet but ranges from 20 inches to 40 inches.

Ashwood silty clay loam, 5 to 12 percent slopes (AsC).—The surface layer of this soil is black or very dark brown silty clay loam, about 10 to 14 inches thick. The subsoil is yellowish-brown, plastic silty clay or clay that is mottled with shades of gray in the lower part. In some cultivated areas part of the subsoil has been mixed with the plow layer. Many areas are included in the areas mapped where the surface layer is 5 to 10 inches thick. In places there are a few outcrops of rock.

This soil is medium or high in phosphorus and is slightly acid to mildly alkaline. It is suited to permanent pasture, hay, and small grain. The firm, plastic subsoil restricts the penetration of roots, air, and water and makes the soil poorly suited to most cultivated crops. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Ashwood silty clay loam, 12 to 20 percent slopes (AsD).—The surface layer of this soil is very dark brown or black silty clay loam 10 to 12 inches thick, and the subsoil is yellowish-brown, plastic silty clay or clay. Many areas are included in the areas mapped where the surface layer is 4 to 10 inches thick. In many places there are a few outcrops of bedrock.

This soil is medium or high in phosphorus and is slightly acid to mildly alkaline. It is poorly suited to cultivated crops because of the slope and the clayey subsoil, but it can

produce fair or high yields of pasture and hay. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Bodine Series

The Bodine series consists of light-colored, very cherty, excessively drained soils on steep hills and knobs. Large areas of these soils occur on the high, narrow, winding ridges and steep slopes of the Highland Rim. These soils developed in residuum from cherty limestone (fig. 8).

Figure 8.—**Level-bedded chert formation exposed in a road cut. Soils of the Bodine series developed in material weathered from this kind of rock.**

Chert fragments occur throughout the profile and make up 40 to 75 percent of the soil mass. The slope ranges from 5 to 45 percent but is dominantly more than 20 percent.

Bodine soils typically have a surface layer of dark grayish-brown, very friable cherty silt loam and a subsoil of yellowish-brown or strong-brown cherty silty clay loam.

These soils are low in natural fertility and are strongly acid to extremely acid. They have low available water capacity. They are poorly suited to crops and have little potential for pasture. Most of the acreage is in cutover hardwoods.

Representative profile of Bodine cherty silt loam, 20 to 45 percent slopes, about half a mile south of Oak Grove Church:

A1—0 to 2 inches, dark grayish-brown (10YR 4/2) cherty silt loam; weak, fine, granular structure; very friable; many fine tree roots; very strongly acid.

A2—2 to 11 inches, brown (10YR 4/3) cherty silt loam; weak, fine, granular structure; very friable; common fine tree roots; very strongly acid; clear, wavy boundary.

B21t—11 to 20 inches, yellowish-brown (10YR 5/4) cherty silty clay loam with a few peds coated with pale brown; weak, fine, subangular blocky structure; friable; common, fine and medium tree roots; angular chert fragments, ½ inch to 3 inches across, make up about 50 percent of the soil mass; very strongly acid; gradual, wavy boundary.

B22t—20 to 50 inches +, yellowish-brown (10YR 5/6) silty clay loam interspersed with stratified layers of angular chert that comprise about 65 percent of the horizon; firm; patchy, thin clay films on peds and chert fragments; few medium tree roots; very strongly acid.

The content of chert ranges from about 40 to 75 percent. The depth to cherty limestone bedrock or to loose beds of chert ranges from 2 to 25 feet.

Bodine cherty silt loam, 5 to 20 percent slopes (BoD).—This soil is very cherty. It occurs on narrow, winding ridges and near the edges of broad, rolling areas on the Highland Rim. The surface layer ranges from dark grayish brown in wooded areas to pale brown or yellowish brown in cleared areas. The subsoil is yellowish-brown or reddish-yellow cherty silt loam or cherty silty clay loam. The chert content of the subsoil is ordinarily about 50 percent but ranges from 40 to 75 percent. A few severely eroded areas are included in the areas mapped. These areas generally have a higher concentration of chert on the surface than uneroded areas.

This soil is very poorly suited to cultivated crops because it is steep and cherty and low in natural fertility and available water capacity. It is better suited to permanent pasture, hay, and trees. (Capability unit VIs–1; woodland group 3; wildlife group 5)

Bodine cherty silt loam, 20 to 45 percent slopes (BoF).—The surface layer of this soil is dark grayish brown in wooded areas and pale brown or yellowish brown in cleared areas. The subsoil is yellowish-brown or reddish-yellow cherty silt loam or cherty silty clay loam. Chert fragments, ½ inch to 5 inches in diameter, on the surface and within the profile make up about half of the soil volume. In places beds of loose chert are within 18 inches of the surface. In a few places the soil is underlain by shale and has fragments of weathered shale throughout the profile.

This soil is not suited to cultivated crops and is very poorly suited to pasture, because it is steep and cherty and low in natural fertility and available water capacity. It is suited to trees, and most of the acreage is in heavily cutover hardwoods. (Capability unit VIIs–1; woodland group 3; wildlife group 5)

Braxton Series

The Braxton series consists of deep, well-drained, cherty soils that developed in material weathered from phosphatic limestone or in old, phosphatic gravelly alluvium. These soils occur in the outer part of the Central Basin. The slope range is 2 to 20 percent.

Braxton soils typically have a thin, silty, generally cherty surface layer and a reddish or brownish subsoil of cherty clay.

These soils are phosphatic and are medium acid to very strongly acid. They are only fairly well suited to cultivated crops, but some tracts are used for corn and cotton. Small grains, hay, and pasture grow well. Most of the acreage is used for pasture.

Representative profile of Braxton cherty silt loam, 5 to 12 percent slopes, eroded, about three-fourths of a mile north of Elkton High School:

Ap—0 to 5 inches, brown (10YR 4/3) cherty silt loam; moderate, fine and medium, granular structure; friable; many fine roots; few, small, dark-brown and black concretions; strongly acid; clear, smooth boundary.

B1t—5 to 15 inches, reddish-brown (5YR 4/4) cherty silty clay loam with common, fine and medium, faint mottles of strong brown and yellowish red; moderate, medium, subangular and angular blocky structure; firm; patchy, thick clay films; common fine roots; common, small, black and dark-brown concretions; strongly acid; clear, smooth boundary.

B21t—15 to 21 inches, yellowish-red (5YR 4/6) cherty clay with common, fine and medium, faint mottles of strong brown; moderate to strong, medium, subangular blocky structure; firm; continuous, thick clay films; few fine roots; common, small, black concretions; strongly acid; gradual, smooth boundary.

B22t—21 to 32 inches, yellowish-red (5YR 4/6) cherty clay with common, medium, faint mottles of strong brown; strong, medium, angular blocky structure; firm; continuous, thick clay films; few fine roots; few, small, dark-brown concretions; very strongly acid; gradual, smooth boundary.

B23t—32 to 45 inches +, yellowish-red (5YR 5/6) cherty clay with common, fine and medium, distinct mottles of yellowish brown, strong brown, and reddish brown; strong, medium and coarse, angular blocky structure; thick clay films; very firm; very strongly acid.

The Ap horizon is reddish brown (5YR 4/4) or dark brown (10YR 3/3 and 7.5YR 3/2) in some of the places where it is less than 6 inches thick. The B horizon ranges from strong brown to yellowish red or red. The depth to limestone rock ranges from 5 to 10 feet.

Braxton cherty silt loam, 2 to 5 percent slopes, eroded (BrB2).—This soil occurs in small tracts, mostly on hilltops in the outer part of the Central Basin. The surface layer is brown cherty or gravelly silt loam 4 to 8 inches thick. The subsoil generally grades from strong-brown cherty silty clay loam in the upper part to reddish-brown or yellowish-red cherty clay in the lower part. In places there are a few outcrops of rock.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. Although all the commonly grown crops and pasture plants are suited to this soil and respond to good management, most crops are damaged in summer by drought. In most places surface chert interferes with cultivation. (Capability unit IIIe–3; woodland group 4; wildlife group 3)

Braxton cherty silt loam, 5 to 12 percent slopes, eroded (BrC2).—This soil occurs on uplands and high, gravelly stream terraces of the Central Basin. In most places material from the upper part of the subsoil has been mixed with the plow layer. The surface layer is brown cherty silt loam. The upper part of the subsoil is strong-brown cherty silty clay loam, and the lower part is reddish-brown to red cherty clay. A few patches of this soil are severely eroded and have a surface layer of yellowish-brown to yellowish-red cherty silty clay loam. Bedrock crops out in a few places.

This soil is high in phosphorus and is strongly acid. It is highly erodible because of the slope and the slowly permeable, clayey subsoil, but it is suited to many kinds of crops and pasture plants and is moderately productive. The root zone is 3 feet or more thick, but the clayey subsoil retards the growth of roots. Most crops are damaged in summer by drought. (Capability unit IIIe–3; woodland group 4; wildlife group 3)

Braxton cherty silt loam, 12 to 20 percent slopes, eroded (BrD2).—This soil is on uplands and high, gravelly stream terraces in the outer part of the Central Basin. The surface layer consists of 4 to 6 inches of brown to yellowish-brown cherty silt loam, generally mixed with part of the subsoil. The subsoil ranges from strong-brown cherty silty clay loam in the upper part to yellowish-red or red cherty clay in the lower part. A few patches of this soil are severely eroded and are redder and slightly more clayey. Phosphatic limestone bedrock crops out in a few places.

This soil is medium to high in phosphorus and is strongly acid. Natural fertility is moderate. The available water capacity is medium to low. Runoff is rapid and the erosion hazard severe because of the slope and the moderately slow permeability of the subsoil. Permanent pasture, small grains, and hay are suitable uses. (Capability unit IVe–3; woodland group 4; wildlife group 3)

Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded (BsC3).—This soil is on short upland slopes in the outer part of the Central Basin. The plow layer is yellowish brown to yellowish red and consists largely of strong-brown to red cherty clay from the subsoil. More chert and pebbles are on the surface of this soil than on less severely eroded areas of Braxton soils. Shallow gullies are common, and there are a few deep gullies. Phosphatic limestone bedrock crops out in a few places, but bedrock is generally at a depth of 5 to 10 feet.

This soil is medium or high in phosphorus but low in other plant nutrients. The clayey texture of the surface layer causes poor tilth, rapid runoff, and slow infiltration. It also causes a severe erosion hazard and limits suitability of the soil for cultivated crops. Yields of summer annuals are usually low. Permanent pasture and hay are suitable crops. (Capability unit IVe–3; woodland group 4; wildlife group 3)

Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded (B_sD3).—This soil is on uplands and high, gravelly stream terraces in the Central Basin. The surface layer consists of 6 inches of yellowish-brown to reddish-brown cherty silty clay loam. There is more chert on the surface than on that of less severely eroded Braxton soils. Shallow gullies are common, and there are a few deep gullies. Phosphatic limestone bedrock crops out in a few places.

This soil is high in phosphorus but low in other plant nutrients. It is poorly suited to cultivated crops because of slope, poor tilth, and a low available water capacity. It is suited to permanent pasture and hay. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Braxton silty clay loam, 5 to 12 percent slopes, severely eroded (BtC3).—This soil is on low-lying uplands and high stream terraces in the valleys along Richland Creek and the Elk River. The surface layer consists of 3 to 5 inches of brown to reddish-brown silty clay loam. In a few areas, mainly along the Elk River, the subsoil is dark red. Shallow gullies are common, and there are a few deep gullies. Limestone crops out in places, and in some areas a few chert fragments or pebbles occur on the surface and throughout the soil. In a few places the soil is underlain by gravel beds at a depth of 3 to 4 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has a medium available water capacity. Yields of pasture and most kinds of crops commonly grown are fair to good. Careful management and intensive practices are needed to improve tilth and to protect the soil from further erosion, especially if cultivated crops are grown. (Capability unit IVe–1; woodland group 4; wildlife group 3)

Braxton silty clay loam, 12 to 20 percent slopes, severely eroded (BtD3).—This soil is on high stream terraces. The surface layer consists of 3 to 5 inches of brown or reddish-brown silty clay loam. Shallow gullies are common, and there are a few deep gullies. Limestone crops out in a few places. In many places a few pebbles are scattered

on the surface and throughout the soil. In places the soil is underlain by gravel beds at a depth of 3 to 4 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has a medium available water capacity. It is poorly suited to crops that need frequent tillage, because of slope, erodibility, and poor tilth. Most pasture plants and hay crops are well suited. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Culleoka Series

The Culleoka series consists of deep and moderately deep, well-drained, loamy soils, chiefly on steep hillsides. These soils developed in loamy, phosphatic colluvium. The slope range is 5 to 35 percent. Seeps and intermittent springs are common near the base of steep slopes.

Culleoka soils typically have a surface layer of brown to dark-brown loam and a subsoil of brown, friable clay loam. Soft, porous, fine-grained sandstone or sandy limestone is at a depth of about 4 feet in uneroded areas. Sandy flagstones occur on the surface and throughout the profile of some of the soils.

These soils are medium to high in phosphorus and are strongly acid. Areas that are not too steep to be cultivated are suited to many kinds of crops. About half of the acreage has been cleared. Most of the cleared acreage is used for pasture.

Representative profile of Culleoka loam, 20 to 35 percent slopes, about 1 mile southwest of Brick Church, half a mile south of Richland Creek, near the head of Jackson Hollow:

Ap—0 to 8 inches, dark yellowish-brown (10YR 4/4) loam; weak, fine, granular structure; very friable; many fine roots; few fragments of sandy rock ¼ inch to 2 inches in size; strongly acid; clear, smooth boundary.

A12—8 to 11 inches, brown (10YR 4/3) loam; moderate, fine, granular structure; very friable; many fine roots; few fragments of sandy rock ¼ inch to 2 inches in size; strongly acid; clear, smooth boundary.

B1—11 to 18 inches, brown (7.5YR 4/4) clay loam; weak, medium, subangular blocky structure; friable; few fine roots; few small fragments of sandy rock; few, small, dark-brown and black concretions; strongly acid; clear, wavy boundary.

B2t—18 to 30 inches, brown (7.5YR 4/4) clay loam; moderate, medium, subangular blocky structure; patchy clay films; friable; few fine roots; few fragments of sandy rock ¼ inch to 3 inches in size; few, small and medium, dark-brown and black concretions; strongly acid; gradual, smooth boundary.

B3—30 to 40 inches, brown (7.5YR 4/4) clay loam with few, fine, faint mottles of yellowish brown; moderate, medium, subangular blocky structure; friable; common flat fragments of sandy limestone ½ inch to 6 inches in size; few, small, black and dark-brown concretions; strongly acid.

C—40 to 60 inches, soft, decomposed, fine-grained sandstone; a few lenses and pockets of brown loamy soil material.

The A horizon is generally brown (10YR 4/3), dark yellowish brown (10YR 4/4) or dark brown (10YR 3/3). In places the B horizon is yellowish brown or strong brown. It ranges from 15 to 35 inches in thickness. Its texture is loam or clay loam, and in places this horizon is flaggy. The colluvium in which the soils formed ranges in thickness from 20 inches to about 4 feet.

Culleoka loam, 5 to 12 percent slopes, eroded (CuC2).—This soil occurs in small areas throughout the valleys of Richland Creek and the Elk River. Most of it is in 2- to 5-acre tracts on hilltops. The surface layer is brown or dark-brown loam 4 to 8 inches thick. The subsoil is yellowish-brown or brown clay loam or loam. The depth to soft bedrock ranges from about 20 inches to 48 inches; the average depth is about 36 inches. Included in the areas mapped are a few areas where 1 to 3 feet of clay underlies the loamy soil, and in these places the depth to soft bedrock is 3 to 6 feet. The depth to hard rock is 4 feet to 15 feet. In most places there are a few small fragments of sandy rock on the surface and within the profile. A few patches of this soil are severely eroded, and the surface layer in these places is yellowish-brown or brown loam. There are many fragments of sandy rock on the surface in the severely eroded spots.

This soil is low in plant nutrients other than phosphorus, and it is strongly acid. It has a medium available water capacity. It is easy to work and is well suited to the kinds of crops and pasture plants commonly grown. (Capability unit IIIe–1; woodland group 2; wildlife group 2)

Culleoka loam, 5 to 12 percent slopes, severely eroded (CuC3).—The surface layer of this soil consists of brown loam 3 to 5 inches thick. Soft, phosphatic sandstone or sandy limestone interbedded with shale is at a depth of 20 to 36 inches. In most places fragments of sandy rock, ¼ inch to 3 inches in size, are scattered on the surface. Fragments occur throughout the profile, also, and become more numerous and larger in size as depth increases. Shallow gullies are common, and there are a few deep gullies. Included in the areas mapped are a few areas where 1 to 3 feet of clay occurs between the loamy soil and the soft bedrock.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. If enough lime and fertilizer are used, fair yields of most crops can be obtained under careful management. (Capability unit IVe–1; woodland group 2; wildlife group 2)

Culleoka loam, 12 to 20 percent slopes, eroded (CuD2).—The surface layer of this soil is brown or dark-brown loam 7 inches thick. The subsoil ranges from brown to yellowish-brown, and in a few places to reddish-brown, loam or clay loam. Soft bedrock is at a depth of 2 to 4 feet, except in a few places where 1 to 3 feet of yellow, plastic clay is between the loamy soil and the soft bedrock.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. Any of the common crops can be grown. The main limitation is the slope. (Capability unit IVe–1; woodland group 2; wildlife group 2)

Culleoka loam, 12 to 20 percent slopes, severely eroded (CuD3).—This soil occurs on short hillsides in the outer part of the Central Basin. The plow layer is brown or yellowish-brown, friable loam. The subsoil is about the same color as the surface layer, but its texture is generally clay loam. In places varying amounts of sandy flagstones occur on the surface and throughout the soil, but in most places the stones are not numerous enough to interfere with tillage. Shallow gullies are common, and there are a few deep gullies.

This soil is high in phosphorus and is strongly acid. It has a medium available water capacity. It is easy to work, but slope and susceptibility to erosion limit its use to permanent pasture and hay crops. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Culleoka loam, 20 to 35 percent slopes (CuE).—The surface layer of this soil is brown or dark-brown loam, and the subsoil is yellowish-brown or brown loam or clay loam.

A few patches are severely eroded, and the surface layer in these places is yellowish brown.

This soil is medium to high in phosphorus. It is suited to permanent pasture and hay. Tilth is good, but the slope makes cultivation impractical. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Culleoka loam, 20 to 35 percent slopes, severely eroded (CuE3).—The surface layer of this soil consists of brown or yellowish-brown loam. Shallow gullies are common, and there are a few deep gullies. In places sandy fragments occur on the surface, but not in areas large enough to be mapped separately as flaggy loam.

This soil is fairly high in natural fertility. The slope makes it unsuitable for cultivation. Most areas are suited to permanent pasture, but a few of the more severely eroded areas are better suited to trees. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Culleoka flaggy loam, 15 to 35 percent slopes (CyE).—The surface layer of this soil is brown or dark-brown flaggy loam, and the subsoil is yellowish-brown or brown flaggy clay loam. Flagstones, either of sandstone or of sandy limestone, are scattered on the surface and throughout the profile.

This soil is medium to high in phosphorus. It has a medium to low available water capacity. It is poorly suited to cultivated crops because of the slope and the flagstones. It is only fairly well suited to pasture and hay, but it is suited to trees. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose Series

The Dellrose series consists of deep, well-drained soils, mainly on the lower part of steep hillsides. These soils developed in cherty colluvium, 2 to 10 feet thick, weathered from soils derived from cherty limestone. In most places the colluvium has a medium to high content of phosphorus, inherited from the underlying clay. The slope ranges from 2 to 45 percent but is dominantly between 20 and 30 percent.

Dellrose soils typically have a surface layer of dark-brown cherty silt loam and a subsoil of brown or reddish-brown cherty silt loam or cherty silty clay loam. The solum is more than 45 inches thick. Angular fragments of chert, 1 to 18 inches across, occur on the surface and throughout the profile.

These soils are naturally fertile. They are medium to high in phosphorus and are strongly acid. They have a medium to high available water capacity. Most of the acreage is used for pasture, but a large acreage is idle. High yields of many kinds of crops can be produced, but many areas are too steep for cultivation, and large fragments of chert interfere with the use of farm machinery. Only about 10 percent of the acreage is cultivated.

Representative profile of Dellrose cherty silt loam, 20 to 30 percent slopes, about 1½ miles west of Frankewing, 100 yards north of U.S. Highway 64:

Ap—0 to 5 inches, dark-brown (10YR 3/3) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; medium acid; clear, wavy boundary.

A12—5 to 11 inches, dark-brown (7.5YR 3/2) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; medium acid; clear, wavy boundary.

B1—11 to 23 inches, brown (7.5YR 4/4) cherty silty clay loam; weak, medium, subangular blocky structure; friable; few fine roots; few, small, black concretions; medium acid; clear, wavy boundary.

B21t—23 to 37 inches, brown (7.5YR 4/4) cherty silty clay loam; weak to moderate, medium, subangular blocky structure; friable; few, patchy, thin clay films; few, small, black concretions; strongly acid; gradual, wavy boundary.

B22t—37 to 53 inches, brown (7.5YR 4/4) cherty silty clay loam; weak to moderate, medium, subangular blocky structure; friable; patchy clay films; common, small, black concretions; strongly acid; gradual, wavy boundary.

B3t—53 to 70 inches +, strong-brown (7.5YR 5/6) cherty silty clay loam with common, fine and medium, distinct mottles of light yellowish brown, yellowish brown, and brown; moderate, fine and medium, angular blocky structure; friable; thin, continuous clay films; common, small and medium, black concretions and concretionary stains on surfaces of peds; strongly acid.

The color of the A horizon ranges from dark brown (10YR 3/3 and 7.5YR 3/2) through very dark grayish brown (10YR 3/2), except in eroded areas. The color of the B horizon ranges from brown (7.5YR 4/4) through strong brown (7.5YR 5/6) and reddish brown (5YR 4/4).

Dellrose cherty silt loam, 2 to 5 percent slopes (DeB).—This soil is on cherty toe slopes and fans and gravelly stream terraces. The surface layer is dark-brown cherty silt loam 5 to 8 inches thick. The subsoil is brown or reddish-brown cherty or gravelly silty clay loam. A few areas frequently receive deposits of fresh sediments. In many places the plow layer contains material from the upper part of the subsoil. A few areas are severely eroded, and in these places the surface layer is lighter colored and more clayey.

This soil is medium to high in phosphorus and is strongly acid. It has a medium to high available water capacity. It is suited to many kinds of crops and pasture plants and can be used moderately intensively. The root zone is thick. Pebbles and fragments of chert on the surface are numerous enough to interfere somewhat with cultivation, but otherwise tilth is good. (Capability unit IIe–3; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 5 to 12 percent slopes (DeC).—This soil is on toe slopes, fans, and stream terraces. The surface layer is dark-brown cherty or gravelly silt loam, and the subsoil is brown or reddish-brown cherty or gravelly silty clay loam. In places the plow layer contains material from the subsoil. A few patches are severely eroded, and in these places the surface layer is lighter colored and slightly more clayey. The soils on terraces are generally lighter colored and more uniformly brown. Their subsoil is slightly coarser textured and more friable than that of the soils on toe slopes and fans.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. The root zone is thick. Many kinds of crops and pasture plants are suitable. Crops respond to good management. Chert and gravel on the surface interfere somewhat with cultivation. (Capability unit IIIe–2; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 5 to 12 percent slopes, severely eroded (DeC3).—This soil occurs on toe slopes, fans, and stream terraces. The surface layer consists of brown to dark-brown cherty silt loam. The subsoil is brown or reddish-brown cherty silty clay loam. Shallow gullies are common, and there are a few deep gullies. In a few places

gullying has exposed the underlying clay. There are a few outcrops of rock.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. If enough fertilizer is used and management is generally good, medium yields of the crops commonly grown are obtained. (Capability unit IVe–2; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 12 to 20 percent slopes (DeD).—This soil generally occurs on benches, where it is surrounded by steeper Dellrose soils, or on toe slopes adjoining Armour and Mimosa soils. The surface layer is dark-brown cherty silt loam, and the subsoil is brown to reddish-brown cherty silty clay loam.

This soil is medium to high in phosphorus. It is suited to several kinds of crops and pasture plants. It can be cultivated occasionally, but the slope and the chert make tillage somewhat difficult. The slopes surrounding the benches make access with farm machinery difficult. (Capability unit IVe–2; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 12 to 20 percent slopes, severely eroded (DeD3).—Most of this soil is on toe slopes or near the base of steeper slopes where runoff concentrates. The plow layer consists mostly of brown to reddish-brown cherty silty clay loam from the subsoil. Rills and shallow gullies are common, and there are a few deep gullies in which the underlying phosphatic clay is exposed.

This soil is medium to high in phosphorus and is strongly acid. It has a medium available water capacity. It is suited to pasture and hay. The slope, the chert, and a severe erosion hazard make this soil unsuitable for cultivated crops. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 20 to 30 percent slopes (DeE).—The surface layer of this soil is dark-brown cherty silt loam, and the subsoil is dominantly brown or reddish-brown cherty silty clay loam. The content of chert ranges from 20 to 50 percent, by volume. In places the subsoil is yellowish red. A few areas are severely eroded, and in these places the surface layer is lighter brown and chert fragments are more numerous.

This soil is medium to high in phosphorus. It is rapidly permeable and has a medium available water capacity. Although fertile, it is not suitable for crops, because the slopes are too steep for cultivation with farm machinery. It is highly productive of pasture plants and trees. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 20 to 30 percent slopes, severely eroded (DeE3).—Erosion has removed all or nearly all of the original dark-brown surface layer of this soil. Rills and shallow gullies are common. A few deep gullies have cut through the subsoil of brown to reddish-brown cherty silty clay loam, and the underlying clay is exposed. In most places there is more chert on the surface of this soil than on that of uneroded Dellrose soils. Small areas of Mimosa soils are included in the areas mapped. Phosphatic limestone crops out in a few places.

This soil is medium to high in phosphorus. It has a medium available water capacity. Runoff is rapid, and the erosion hazard is severe. Most of the acreage is fairly well suited to pasture, but some of the more severely eroded and gullied areas are better suited to trees. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose cherty silt loam, 30 to 45 percent slopes (DeF).—The surface layer of this soil is dark-brown cherty silt loam, and the subsoil is dominantly brown to reddish-brown cherty silty clay loam. In a few places the subsoil is yellowish-red to red silty clay loam or silty clay. A few patches are severely eroded, and in these places the surface layer is lighter brown in color and slightly more clayey in texture.

This soil is medium to high in phosphorus. It is rapidly permeable and has a medium available water capacity. It is suited to pasture and trees, but the steep slopes and the chert cause difficulty in seedbed preparation, mowing, and application of lime and fertilizer. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose coarse cherty silt loam, 12 to 20 percent slopes (DlD).—The surface layer of this soil is dark-brown coarse cherty silt loam, and the subsoil is brown or yellowish-brown coarse cherty silty clay loam. On the surface and throughout the soil are chert fragments 1 to 18 inches across. In most places at least half the fragments are more than 6 inches across. A few areas are severely eroded, and in these places the surface layer is yellowish brown or brown and there is more chert on the surface than in the less eroded areas.

This soil is medium to high in phosphorus. It has a medium available water capacity. It is suited to permanent pasture and hay. The slope and the chert make the use of farm machinery difficult and cultivation of crops impractical. (Capability unit VIe–1; woodland group 2; wildlife group 2)

Dellrose coarse cherty silt loam, 20 to 45 percent slopes (DlF).—The surface layer of this soil is dark-brown coarse cherty silt loam, and the subsoil is yellowish-brown to reddish-brown coarse cherty silty clay loam. A few areas are severely eroded, and in these places the surface layer is lighter brown.

This soil is medium to high in phosphorus. It is suited to trees, but it is only poorly suited to crops and pasture because the slope and the number and large size of the chert fragments make use of farm machinery impractical. Most of the acreage is in hardwoods. Nearly all of the cleared areas are either idle or in unimproved pasture. (Capability unit VIIe–1; woodland group 2; wildlife group 2)

Dickson Series

The Dickson series consists of moderately well drained soils that have a fragipan. These soils occur on uplands of the Highland Rim. They developed in loess over cherty clay residuum weathered from limestone. The mantle of loess ranges from about 18 inches to 36 inches in thickness, and in most places the fragipan is at or near the boundary between the loess and the cherty clay. The slope range is 2 to 5 percent.

Dickson soils typically have a surface layer of brown or dark grayish-brown silt loam and a subsoil of yellowish-brown silt loam or silty clay loam.

About 75 percent of the acreage is used for crops and pasture. A fairly large acreage is idle.

Representative profile of Dickson silt loam, 2 to 5 percent slopes, about one-fourth of a mile north of Shore Church:

Ap—0 to 7 inches, dark grayish-brown (10YR 4/2) or brown (10YR 5/3) silt loam; weak, fine, granular structure;

very friable; common fine roots; few, small, black concretions; strongly acid; clear, smooth boundary.

B1—7 to 13 inches, yellowish-brown (10YR 5/4) silt loam; weak, medium, subangular blocky structure; friable; common fine roots; few, small, black and dark-brown concretions; strongly acid; clear, wavy boundary.

B2—13 to 22 inches, yellowish-brown (10YR 5/4) silt loam or silty clay loam with few, fine and medium, faint mottles of light olive brown; moderate, medium, subangular blocky structure; friable; few fine roots; few small, dark-brown concretions; few chert fragments ¼ to ½ inch in size; strongly acid; clear, wavy boundary.

A'2—22 to 27 inches, pale-brown (10YR 6/3) silt loam with many, fine and medium, distinct mottles of light gray, gray, light olive brown, and dark yellowish brown; weak, medium, angular blocky structure; firm; few, small, soft, brown concretions; few chert fragments ¼ to ½ inch in size; very strongly acid; clear, wavy boundary.

B'x1—27 to 32 inches, mottled yellowish-brown (10YR 5/4), light olive-brown (2.5Y 5/4), gray (10YR 6/1), and dark yellowish-brown (10YR 4/4) silt loam; weak, medium, angular blocky structure; firm and compact when moist, hard and brittle when dry; few patchy clay films; few chert fragments ¼ to ½ inch in size; strongly acid; gradual, wavy boundary.

B'x2—32 to 40 inches, mottled light brownish-gray (2.5Y 6/2), yellowish-brown (10YR 5/6), strong-brown (7.5YR 5/6), olive-brown (2.5Y 4/4), and gray (10YR 6/1) silty clay loam; weak, coarse, angular blocky structure; firm and compact when moist, hard and brittle when dry; patchy clay films; few chert fragments ½ inch to 3 inches in size; strongly acid; gradual, wavy boundary.

IIB'2t—40 to 50 inches +, mottled yellowish-brown (10YR 5/6), red (2.5YR 4/6), gray (10YR 6/1), and light olive-brown (2.5Y 5/4) cherty silty clay; massive; firm; few thin clay films; strongly acid.

The depth to the fragipan ranges from 16 to 32 inches. The A horizon ranges to brown (10YR 4/3).

Dickson silt loam, 2 to 5 percent slopes (DnB).—In this soil a mottled fragipan begins at a depth of about 2 feet. The surface layer is brown or dark grayish-brown silt loam. The subsoil above the fragipan is yellowish-brown silt loam or silty clay loam. A few areas are severely eroded, and in these places the surface layer is lighter brown in color and generally slightly more clayey in texture.

This soil is low in natural fertility and is very strongly acid. It has medium available water capacity. It is permeable to plant roots, air, and water above the fragipan but very slowly permeable in the fragipan. It is easy to work and fairly easy to conserve. All of the common crops can be grown, but alfalfa stands ordinarily last only 2 or 3 years, because of the restricted root zone and slow drainage in the lower part of the subsoil. (Capability unit IIe–2; woodland group 5; wildlife group 6)

Donerail Series

The Donerail series consists of moderately well drained soils on low stream terraces. These soils developed in alluvium, about 2 to 10 feet thick, washed mainly from soils derived from phosphatic limestone. The slope ranges from 2 to 5 percent but is less than 3 percent in most places.

Donerail soils typically have a surface layer of dark-brown silt loam and a subsoil of brown to yellowish-brown heavy silty clay loam to clay that is mottled in the lower part. The subsoil is compact and slowly permeable.

These soils are strongly acid. Nearly all of the acreage has been cleared and is intensively cropped.

Representative profile of Donerail silt loam, 2 to 5 percent slopes, about 1½ miles south of Frankewing, along Bradshaw Creek:

AP—0 to 7 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1—7 to 12 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; patchy, thin clay films; friable; common fine roots; few, small, dark-brown and black concretions; strongly acid; clear, smooth boundary.

B21t—12 to 22 inches, yellowish-brown (10YR 5/6) heavy silty clay loam with common, medium, distinct mottles of dark brown and light yellowish brown; moderate, medium, subangular and angular blocky structure; firm; continuous clay films; few fine roots; common, small, dark-brown and black concretions; strongly acid; gradual, wavy boundary.

B22t—22 to 42 inches, yellowish-brown (10YR 5/6) silty clay with common, fine and medium, distinct mottles of strong brown, light yellowish brown, and light gray; weak, medium and coarse, angular blocky structure; firm; continuous, thick clay films; few weathered chert fragments or pebbles ¼ to 1 inch in size; many, small to large, black concretions; strongly acid; gradual, wavy boundary.

B3—42 to 45 inches +, mottled yellowish-brown (10YR 5/6), gray (10YR 6/1), and strong-brown (7.5YR 5/6) clay; massive; very firm; common chert pebbles; many small, medium, and large, black concretions; strongly acid.

The A horizon ranges from dark brown (10YR 3/3) to very dark grayish brown (10YR 3/2) in color and from silt loam to silty clay loam in texture. The dominant colors of the B horizon are brown, strong brown, and yellowish brown, in hues of 7.5YR and 10YR.

Donerail silt loam, 2 to 5 percent slopes (DoB).—The surface layer of this soil is dark-brown silt loam 6 to 12 inches thick. The subsoil is brown to yellowish brown. Its texture ranges from silty clay loam in the upper part to clay in the lower part. In most places the lower part of the subsoil has distinct mottles of light olive brown, pale brown, and gray.

This soil is medium to high in phosphorus and is strongly acid. It is fairly easy to work. It can be used moderately intensively for shallow-rooted crops, but it is poorly suited to alfalfa and other deep-rooted crops because the clayey subsoil restricts the penetration of plant roots and the movement of air and water. (Capability unit IIe–2; woodland group 5; wildlife group 6)

Dowellton Series

The Dowellton series consists of grayish, poorly drained soils on low stream terraces. These soils developed in old sediments, about 3 to 10 feet thick, washed from soils derived mainly from phosphatic limestone. The slope range is 0 to 2 percent.

Dowellton soils typically have a surface layer of dark-gray to dark grayish-brown silt loam and a subsoil of gray heavy silty clay loam to clay. The subsoil is slowly permeable.

These soils are medium acid to neutral. Most of the acreage is used for pasture.

Representative profile of Dowellton silt loam, about 1 mile west of Elkton, 500 yards south of Elkton-Prospect Road:

Ap1—0 to 5 inches, dark-gray (10YR 4/1) silt loam; weak, fine, granular structure; many fine roots; common, small

and medium, dark-brown and black concretions; slightly acid; clear, smooth boundary.

Ap2—5 to 12 inches, dark-gray (10YR 4/1) silt loam with few, medium, faint mottles of grayish brown; weak, fine, granular structure; friable; common fine roots; common, small and medium, dark-brown and black concretions; slightly acid; clear, smooth boundary.

B1tg—12 to 16 inches, gray (10YR 5/1) heavy silty clay loam with common, medium, faint mottles of grayish brown; moderate, medium, subangular and angular blocky structure; firm; continuous clay films; few fine roots; many, small and medium, olive-brown, yellowish-brown, and black concretions; neutral; gradual, wavy boundary.

B2tg—16 to 21 inches, gray (5Y 6/1) silty clay; weak, medium, angular blocky structure; firm, sticky and plastic; common clay films; many small and medium concretions of red, strong brown, yellowish red, and black; neutral; gradual, wavy boundary.

B31tg—21 to 40 inches, gray (10YR 6/1) clay; massive; very firm, sticky and plastic; common clay films; many medium and coarse concretions of dark brown, strong brown, yellowish brown, and black; neutral; gradual, wavy boundary.

B32cn—40 to 48 inches, gray (10YR 5/1) clay interspersed with dark-brown, strong-brown, and black concretionary material; massive; very firm and compact when moist, hard when dry; slightly acid.

The lower part of the subsoil commonly contains many iron and manganese concretions, but in some areas there are practically none.

Dowellton silt loam (0 to 2 percent slopes) (Dw).—The surface layer of this soil is dark grayish-brown silt loam 6 to 10 inches thick. The subsoil is dominantly gray clay mottled with shades of brown, olive, and yellow. It generally contains many dark-brown and black concretions. In places the surface is covered by 3 to 5 inches of brown or dark-brown recent sediments.

This soil is medium to high in phosphorus and is medium acid to neutral. The subsoil is slowly permeable. Use is limited by excess water. Crop failures are common. Without artificial drainage, this soil is suited to such pasture plants as tall fescue. If it is artificially drained, most summer annual crops can be grown. (Capability unit IVw–1; woodland group 7; wildlife group 8)

Etowah Series

The Etowah series consists of deep, well-drained, cherty soils, mainly on toe slopes and fans at the base of steep slopes in highly dissected parts of the Highland Rim. These soils developed in deposits of old cherty local alluvium, 3 to 6 feet thick, washed from soils derived from cherty limestone and loess. The slope range is 5 to 20 percent.

Etowah soils typically have a surface layer of dark-brown cherty silt loam and a subsoil of yellowish-red or reddish-brown, friable cherty silty clay loam.

Most of the acreage has been cleared. About two-thirds is used for crops or pasture, and the rest is idle or in hardwood trees. Crops respond well to good management.

Representative profile of Etowah cherty silt loam, 12 to 20 percent slopes, about half a mile south of Booth Chapel Church:

Ap—0 to 9 inches, dark-brown (10YR 3/3) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1—9 to 17 inches, brown (7.5YR 4/4) or reddish-brown (5YR 4/4) cherty heavy silt loam; weak, fine and medium, subangular blocky structure; friable; common fine roots; few, small, rounded, black and dark reddish-brown concretions; strongly acid; clear, smooth boundary.

B21t—17 to 31 inches, yellowish-red (5YR 4/6) cherty silty clay loam; moderate, medium, subangular blocky structure; friable; patchy clay films; few fine roots; few, small, rounded, dark reddish-brown and black concretions; strongly acid; gradual, smooth boundary.

B22t—31 to 38 inches, yellowish-red (5YR 4/6) cherty silty clay loam with common, fine and medium mottles of red and strong brown; moderate, medium, subangular blocky structure; friable; continuous clay films; few, small, black concretions; strongly acid; gradual, smooth boundary.

B3t—38 to 60 inches +, red (2.5YR 4/6), dark-red, brown (7.5YR 5/4), and pale-brown (10YR 6/3) cherty silty clay; moderate to strong, angular blocky structure; firm; patchy clay films; strongly acid.

In places the A horizon is dark brown (7.5YR 3/2) or very dark grayish brown (10YR 3/2). The major part of the B horizon is yellowish red, reddish brown, or red, in hues of 5YR and 2.5YR. The content of chert ranges from about 15 to 25 percent.

Etowah cherty silt loam, 5 to 12 percent slopes (EtC).—The surface layer of this soil consists of 5 to 10 inches of dark-brown cherty silt loam, and the subsoil of yellowish-red or reddish-brown cherty silty clay loam. A few areas are severely eroded, and in these places the surface layer is reddish brown.

This soil is strongly acid. It has a medium available water capacity. Tilth is good, and crops respond well to good management. All kinds of crops and pasture plants commonly grown in the county are suitable. Yields are medium to high. Chert on the surface interferes somewhat with cultivation, but otherwise tilth is good. (Capability unit IIIe–2; woodland group 2; wildlife group 2)

Etowah cherty silt loam, 12 to 20 percent slopes (EtD).—The surface layer of this soil consists of 5 to 8 inches of dark-brown cherty silt loam, and the subsoil of yellowish-red or reddish-brown cherty silty clay loam. A few areas are severely eroded, and in these places the surface layer is slightly finer textured and lighter colored. In a few places the subsoil is yellowish brown.

This soil is moderate in fertility and is strongly acid. Most kinds of crops and pasture plants commonly grown are suited. Chert interferes somewhat with cultivation, reduces available water capacity, and impairs productivity. (Capability unit IVe–2; woodland group 2; wildlife group 2)

Fullerton Series

The Fullerton series consists of deep, well-drained, cherty or gravelly soils, mainly on side slopes and ridgetops on the Highland Rim. These soils developed in material weathered from limestone. The slope ranges from 2 to 40 percent but is dominantly 5 to 20 percent. Chert and gravel make up 15 to 50 percent of the soil mass.

Fullerton soils typically have a surface layer of brown cherty silt loam and a subsoil that is strong-brown, yellowish-red, or red cherty silty clay loam or cherty clay. They are strongly acid to very strongly acid.

About a quarter of the acreage is in forest. Cleared areas are used mainly for pasture, but much of the cleared acreage is idle. Yields of grain and cultivated crops are fair to poor.

Representative profile of Fullerton cherty silt loam, 12 to 20 percent slopes, about 2 miles south of Minor Hill and 25 feet west of State Highway 11:

Ap—0 to 6 inches, brown (10YR 4/3) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1t—6 to 13 inches, strong-brown (7.5YR 5/6) cherty silty clay loam; moderate, medium, subangular blocky structure; friable; patchy, thin clay films; common fine roots; few, small, black concretions; very strongly acid; clear, wavy boundary.

B21t—13 to 19 inches, yellowish-red (5YR 4/6) cherty silty clay loam with few, fine and medium, distinct mottles of strong brown; moderate, medium, subangular blocky structure; friable; continuous clay films; few fine roots; few black concretions; very strongly acid; clear, wavy boundary.

B22t—19 to 34 inches, yellowish-red (5YR 4/6) cherty clay with common, fine and medium, distinct mottles of yellowish brown, red, and dark red; moderate to strong, medium, angular blocky structure; firm; continuous clay films; few fine roots; few, small, dark-brown and black concretions; very strongly acid; gradual, wavy boundary.

B23t—34 to 48 inches, yellowish-red (5YR 5/6) cherty clay with common, medium mottles of strong brown, red, and light brownish gray; strong, medium and coarse, angular blocky structure; firm; continuous clay films; very strongly acid; gradual, wavy boundary.

B3t—48 to 60 inches +, mottled red, strong-brown, and gray silty clay or clay interspersed with stratified angular fragments of chert; firm; very strongly acid.

The Ap horizon ranges from dark grayish brown (10YR 4/2) to brown (10YR 4/3 and 10YR 5/3), except in severely eroded areas. The major part of the B horizon is yellowish red or red. The depth to limestone ranges from 6 to 25 feet.

Fullerton cherty silt loam, 12 to 20 percent slopes (FaD).—The surface layer of this soil is brown or yellowish-brown cherty silt loam 4 to 7 inches thick. The upper part of the subsoil is generally strong-brown cherty silty clay loam, and the lower part is yellowish-red or red cherty silty clay or cherty clay. Included in the areas mapped are a few small, severely eroded areas where the surface layer is strong-brown cherty silty clay loam.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. It is only fairly well suited to cultivation, though crops respond well to lime and fertilizer. Yields of row crops are fair. Yields of small grain, hay, and pasture are better. (Capability unit IVe–3; woodland group 3; wildlife group 5)

Fullerton cherty silt loam, 2 to 5 percent slopes (FaB).—The surface layer of this soil is brown cherty silt loam, 4 to 8 inches thick in most cultivated areas. Generally it is thicker, as well as darker colored, in wooded areas. The subsoil ranges from strong-brown cherty silty clay loam in the upper part to yellowish-red or red cherty clay in the lower part. Included in the areas mapped are a few severely eroded patches where the surface layer is redder and more clayey.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. Chert interferes with cultivation, but otherwise the soil is fairly easy to work. Most of the common crops can be grown. The response to lime and fertilizer is good. (Capability unit IIIe–3; woodland group 3; wildlife group 5)

Fullerton cherty silt loam, 5 to 12 percent slopes (FaC).—The surface layer of this soil is brown or yellowish-brown cherty silt loam, 5 to 7 inches thick in most cultivated areas. Generally, it is slightly thicker and darker brown in wooded areas. The subsoil is yellowish-red cherty clay. Included in the areas mapped are a few severely eroded patches where the surface layer is redder and more clayey.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. It is suited to pasture and to most kinds of crops commonly grown. Chert interferes with cultivation, but otherwise the soil is fairly easy to work. The response to lime and fertilizer is good. Yields are fair. (Capability unit IIIe–3; woodland group 3; wildlife group 5)

Fullerton cherty silt loam, 20 to 30 percent slopes (FaE).—The surface layer of this soil is brown cherty silt loam 5 to 8 inches thick. The subsoil ranges from strong-brown cherty silty clay loam in the upper part to yellowish-red or red cherty clay in the lower part. The solum is generally thinner than that of Fullerton soils on milder slopes and contains more and larger fragments of chert. Included in the areas mapped are a few severely eroded patches where the surface layer is strong-brown or yellowish-red cherty silty clay loam.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. It is fairly well suited to permanent pasture, but chertiness and susceptibility to erosion make it unsuitable for cultivated crops. (Capability unit VIe–2; woodland group 3; wildlife group 5)

Fullerton cherty silt loam, 30 to 40 percent slopes (FaF).—The surface layer of this soil is brown cherty silt loam, and the subsoil is red cherty clay. The chert fragments are larger and more numerous than those in less steep areas. Included in the areas mapped are a few severely eroded patches where the surface layer is yellowish-brown or yellowish-red cherty silty clay loam.

This soil is low in natural fertility and is strongly acid. It has a low available water capacity. Because of the slope, chertiness, and susceptibility to erosion, this soil is unsuitable for crops. It is poorly suited to pasture but can be used for trees. (Capability unit VIIe–1; woodland group 3; wildlife group 5)

Fullerton cherty silty clay loam, 5 to 12 percent slopes, severely eroded (FcC3).—The surface layer of this soil is strong-brown or yellowish-red cherty silty clay loam 3 to 5 inches thick. The surface is more cherty in most places than that of the less eroded Fullerton soils. Shallow gullies are common, and there are a few deep gullies where the underlying chert beds are exposed.

This soil is low in natural fertility, and it has a low available water capacity. It can be cultivated occasionally, but tillage is difficult because of the clayey surface layer, the chert, and the slope. Small grain, hay, and pasture are better suited than row crops. (Capability unit IVe–3; woodland group 3; wildlife group 5)

Fullerton cherty silty clay loam, 12 to 20 percent slopes, severely eroded (FcD3).—The surface layer of this soil is strong-brown to reddish-yellow cherty silty clay loam. It consists largely of yellowish-red or red cherty clay from the subsoil. In most places the surface is more cherty than that of less eroded Fullerton soils. Shallow gullies are common, and there are a few deep gullies.

This soil is low in natural fertility, and it has a low available water capacity. It is poorly suited to cultivated crops

but can be used for pasture and hay. Tilth is poor. (Capability unit VIe–2; woodland group 3; wildlife group 5)

Fullerton cherty silty clay loam, 20 to 30 percent slopes, severely eroded (FcE3).—This soil is unevenly eroded. In places sheet erosion has removed all or nearly all of the original surface layer, leaving a thin surface layer of yellowish-brown or reddish-yellow cherty silty clay loam. Shallow gullies are common, and there are a few deep gullies. In gullied areas the subsoil of red cherty clay is exposed, but 3 to 6 inches of brown cherty silt loam from the original surface layer remains in areas between gullies.

This soil is low in natural fertility, and it has a low available water capacity. It is poorly suited to cultivated crops. Fair to good pastures can be established and maintained if intensive conservation practices are followed and if liberal amounts of lime and fertilizer are used, but the expense is high and the risk of failure is serious. (Capability unit VIe–2; woodland group 3; wildlife group 5)

Godwin Series

The Godwin series consists of soils on first bottoms, along small drainageways, and in depressions. These soils developed in 3 feet to about 10 feet of alluvium washed from soils derived chiefly from phosphatic limestone. The slope range is 0 to 2 percent.

Godwin soils typically have about 12 to 20 inches of dark-brown, friable silt loam overlying darker colored, more compact, finer textured soil material. The uppermost 15 to 20 inches of the Godwin soils resembles the uppermost 15 to 20 inches of the Lynnville and Staser soils. Below this depth, Godwin soils resemble Roellen soils.

These soils are naturally fertile, medium to high in phosphorus, and medium acid to neutral. Nearly all of the acreage is used for crops and pasture.

Representative profile of Godwin silt loam, about 2 miles northwest of Elkton:

Ap—0 to 9 inches, dark-brown (10YR 3/3) silt loam; moderate, fine, granular structure; very friable; many fine roots; medium acid; clear, smooth boundary.

A12—9 to 17 inches, dark yellowish-brown (10YR 3/4) silt loam; moderate, fine, granular structure; friable; common fine roots; slightly acid; clear, smooth boundary.

A13—17 to 21 inches, very dark grayish-brown (10YR 3/2) heavy silt loam; moderate, fine and medium, granular structure; friable; few fine roots; few small chert fragments; common, small, black and dark-brown concretions; slightly acid; gradual, wavy boundary.

A14—21 to 28 inches, very dark gray (10YR 3/1) silty clay loam; moderate, medium, granular structure; firm; few fine roots; few, small, white, weathered chert fragments; common, small, dark-brown and black concretions; neutral; gradual, wavy boundary.

A15—28 to 40 inches, very dark gray (10YR 3/1) silty clay with common, fine and medium, faint mottles of very dark brown; strong, medium and coarse, granular structure to fine, angular blocky; firm; few, small, white, weathered chert fragments; many, small and medium, brown, dark-brown, and black concretions; neutral; gradual, wavy boundary.

Cg—40 to 60 inches +, dark-gray (N 4/0) clay; many coarse mottles of light gray (N 6/0) and olive brown (2.5Y 4/4); massive; firm; common, small, white, weathered chert fragments; many, small and medium, dark-brown concretions; neutral.

The soil material in the layers between 10 and 40 inches from the surface is about 40 percent clay on the average. The Ap and A12 horizons are very dark grayish brown (10YR 3/2) in places.

Godwin silt loam (0 to 2 percent slopes) (Go).—The uppermost 12 to 20 inches of this soil is dark-brown silt loam that grades to dark yellowish brown and very dark grayish brown. Below this is black or very dark gray, compact silty clay loam or silty clay, through which water moves slowly. In most places this soil has a thick overwash of brown silt loam.

This soil is naturally fertile, medium to high in phosphorus, and slightly acid to neutral. Runoff is slow, and permeability is moderately slow to slow. Most of the acreage is subject to flooding, and ponding is common. In general, this soil is poorly suited to deep-rooted legumes but is well suited to most kinds of summer annuals. If it is well managed, it can be used intensively and produces good yields. (Capability unit IIw–1; woodland group 6; wildlife group 7)

Greendale Series

The Greendale series consists of deep, well-drained soils in depressions and in narrow valleys along small streams on the Highland Rim. These soils developed in alluvium, 2 to 10 feet thick, washed from soils derived from cherty limestone and loess. The slope range is about 1 to 5 percent.

Greendale soils typically have a surface layer of brown or dark yellowish-brown, friable cherty silt loam and a subsoil of yellowish-brown, friable cherty silt loam or silty clay loam. Some areas of this soil are not cherty.

These soils are medium to high in available water capacity. They are medium acid to strongly acid. Except for the chert, they are easy to work. If enough lime and fertilizer are added, they produce good yields of most crops and pasture plants commonly grown.

Representative profile of Greendale silt loam, about 1½ miles south of Minor Hill, ¾ mile west of Jackson's store on Minor Hill-Salem (Alabama) Road:

Ap—0 to 8 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, fine, granular structure; very friable; many fine roots; few chert fragments, ¼ inch to 2 inches in size; few, small, black concretions; medium acid; clear, wavy boundary.

A12—8 to 13 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; common fine roots; few, small, black concretions; strongly acid; clear, wavy boundary.

B1—13 to 20 inches, yellowish-brown (10YR 5/4) silt loam with few, fine, distinct mottles of dark brown; weak, fine and medium, subangular blocky structure; friable; few fine roots; few, small, black concretions; strongly acid; gradual, wavy boundary.

B21—20 to 29 inches, yellowish-brown (10YR 5/4) or brown (7.5YR 5/4) heavy silt loam; weak, fine and medium, subangular blocky structure; friable; few fine roots; few, small, black concretions; strongly acid; gradual, wavy boundary.

B22—29 to 34 inches, yellowish-brown (10YR 5/4) silty clay loam with few, medium, distinct mottles of light olive brown; weak, medium, subangular blocky structure; few chert fragments, ½ inch to 2 inches in size; few, small, black concretions; strongly acid; gradual, wavy boundary.

B3—34 to 48 inches +, yellowish-brown (10YR 5/4) or light yellowish-brown (10YR 6/4) cherty silty clay loam with common, fine and medium, distinct mottles of light brownish gray and light olive brown; moderate, medium, subangular blocky structure; friable; few, small and medium, black and dark-brown concretions; strongly acid.

The A horizon varies from brown to dark grayish brown, dark yellowish brown, or pale brown. In places the B horizon is yellowish brown, brown, or strong brown. The content of clay in the layers between 10 and 40 inches from the surface ranges from 20 to about 30 percent.

Greendale silt loam (1 to 3 percent slopes) (Gs).—The surface layer of this soil consists of 6 to 14 inches of brown silt loam, and the subsoil is yellowish-brown silt loam or light silty clay loam. In places the lower part of the subsoil is not well drained and is mottled with gray and olive brown.

This soil is high in available water capacity. It is strongly acid. Tilth is good. Crops respond well to lime and fertilizer, and high yields of most kinds of crops and pasture plants commonly grown are produced. Some areas are flooded or ponded at times, and in depressions the water table is usually within a few inches of the surface during wet periods. In most places surface drainage and internal drainage are good most of the year. (Capability unit I–1: woodland group 1; wildlife group 1)

Greendale cherty silt loam (2 to 5 percent slopes) (Gr).—The surface layer of this soil consists of 6 to 12 inches of brown cherty silt loam, and the subsoil of yellowish-brown cherty silt loam or cherty silty clay loam. In most places the subsoil is mottled with gray and olive brown below a depth of about 30 inches.

This soil is moderately fertile and is strongly acid. It has a medium available water capacity. Most of the common crops and pasture plants can be grown. Yields are good if sufficient amounts of lime and fertilizer are used. Most areas, however, are not easily accessible to farm machinery because so much of the acreage is in narrow valleys bordered by steep hills. Only about 25 percent of the acreage has been cleared and cultivated. Chert interferes somewhat with tillage. The trees in wooded areas are mainly hardwoods. (Capability unit IIs–1; woodland group 1; wildlife group 1)

Gullied Land

Gullied land (Gu) consists of severely eroded soils cut by a network of shallow to deep gullies. Outcrops of bedrock are common, and in many of the deeper gullies the bedrock is exposed.

The soil material is generally clayey, strongly acid, low to very low in organic-matter content, and low in available water capacity. Runoff is very rapid, and permeability is generally slow or very slow. Most of the acreage is suited to trees. Areas where the soil material is deep and the slope is less than 20 percent can be reclaimed and used for crops and pasture, but the expense is high. (Capability unit VIIe–1; woodland group 8; wildlife group 10)

Guthrie Series

The Guthrie series consists of gray, poorly drained soils on upland flats on the Highland Rim. These soils developed in about 2 to 4 feet of loess or silty alluvium overlying cherty clay. In most places a fragipan has developed at or just above the boundary between the silty material and the cherty clay. The slope is less than 2 percent.

Guthrie soils typically have a surface layer of gray, friable silt loam overlying mottled silty clay loam. They are strongly acid to very strongly acid.

These soils are too poorly drained to be suitable for most kinds of crops. The level to nearly level terrain and very slowly permeable fragipan cause very slow runoff and ponding and keep the soils waterlogged for long periods. Only about 25 percent of the acreage has been cleared. The cleared areas are used chiefly for pasture.

Representative profile of Guthrie silt loam, about 3 miles west of Anthony Hill at the headwaters of East Fork Shannon Creek:

Ap—0 to 5 inches, gray (10YR 5/1) silt loam; weak, fine, granular structure; very friable; common fine roots; common, small, soft, yellowish-brown concretions; strongly acid; clear, smooth boundary.

A2—5 to 12 inches, light-gray (10YR 6/1) silt loam; weak, fine, granular structure; very friable; common fine roots; many, small and medium, soft, yellowish-brown concretions and concretionary stains; very strongly acid; clear, wavy boundary.

Bg—12 to 22 inches, gray (N 6/0) silty clay loam with common, medium, distinct mottles of light olive brown; weak, medium, subangular blocky structure; friable; few fine roots; common, small and medium, soft, yellowish-brown and strong-brown concretions; very strongly acid; gradual, wavy boundary.

Bx—22 to 40 inches +, mottled dark-gray (N 4/0), gray (10YR 5/1), and light-gray (10YR 6/1) silty clay loam; weak, medium, angular blocky structure; very firm and somewhat brittle; common thick films and seams of gray clay; common, medium and large, strong-brown and yellowish-brown concretions; very strongly acid.

The depth to the fragipan ranges from 18 to 30 inches.

Guthrie silt loam (0 to 1 percent slopes) (Gw).—The surface layer of this soil is thick, gray silt loam, and the subsoil is gray or light-gray silt loam or silty clay loam. In most places there is a fragipan in the lower part of the subsoil. The largest areas of this soil are along Piney Creek, in the vicinity of Ardmore. The slope is less than 2 percent.

This soil is low in natural fertility and is dominantly strongly acid. If it is artificially drained, it is suitable for crops that can be planted late in the season, such as soybeans. Tall fescue and lespedeza are suitable pasture plants. Most of the acreage is in hardwoods. (Capability unit IVw–1; woodland group 7; wildlife group 8)

Hampshire Series

The Hampshire series consists of phosphatic soils on hills in the Central Basin. These soils developed in material derived from phosphatic limestone and interbedded sandy limestone and shale. Fragments of weathered rock are scattered on the surface in many places. Soft, sandy limestone and shale crop out in a few places. The slope range is 3 to 20 percent.

Hampshire soils typically have a surface layer of brown silt loam, 6 or 7 inches thick, and a subsoil of yellowish-brown to strong-brown silty clay or clay.

These soils are medium to high in phosphorus and are strongly acid or very strongly acid. They have a low to medium available water capacity. They are suited to pasture but are poorly suited to row crops. Nearly all of the acreage has been cleared. Most of it is used for pasture, but much of the steep acreage is idle.

Representative profile of Hampshire silt loam, 3 to 12 percent slopes, eroded, about 1 mile northwest of Elkton, along Bryson Road:

Ap—0 to 7 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; common fine roots; few

fragments of chert or highly weathered limestone ¼ inch to 2 inches in size; strongly acid; clear, wavy boundary.

B1t—7 to 15 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; patchy, thin clay films; common fine roots; few, small, rounded, black and dark-brown concretions; very strongly acid; clear, wavy boundary.

B21t—15 to 27 inches, strong-brown (7.5YR 5/6) silty clay; moderate, medium, subangular and angular blocky structure; firm; patchy, thick clay films; common, small and medium, rounded, black concretions; very strongly acid; clear, wavy boundary.

B22t—27 to 35 inches, yellowish-brown (10YR 5/6) or strong-brown (7.5YR 5/6) silty clay with common, medium, distinct mottles of pale brown and brown; moderate, medium, subangular and angular blocky structure; firm; continuous, thick clay films; common, small and medium, black and dark-brown concretions; very strongly acid; clear, wavy boundary.

B3t—35 to 42 inches, yellowish-brown (10YR 5/6) silty clay with common, medium, brown and light yellowish-brown mottles; strong, medium, angular blocky structure; firm; continuous, thick clay films; few, small, highly weathered fragments of limestone; common, small and medium, black, dark-brown, and reddish-brown concretions; very strongly acid; clear, wavy boundary.

C—42 to 50 inches, soft, horizontally bedded, phosphatic siltstone or fine-grained, sandy limestone.

The A horizon is brown, dark grayish brown, yellowish brown, or strong brown in hues of 10YR and 7.5YR. The B horizon is strong brown, brown, or yellowish brown in hues of 7.5YR and 10YR. The clay content of the B horizon ranges from about 40 percent to 50 percent. The depth to soft, sandy limestone ranges from about 3 inches to 5 feet. The depth to hard rock is generally more than 5 feet.

Hampshire silt loam, 3 to 12 percent slopes, eroded (HaC2).—The surface layer of this soil is brown or yellowish-brown silt loam 4 to 6 inches thick, and the subsoil is yellowish-brown or strong-brown silty clay or clay. In most places the lower part of the subsoil is mottled with pale brown or gray. Fragments of weathered limestone, siltstone, and shale occur in the lower part of the subsoil in most places. A few patches of this soil are severely eroded. Bedrock crops out in a few places.

This soil is medium to high in phosphorus and is very strongly acid. It has a medium available water capacity. The clayey subsoil restricts the penetration of plant roots and the movement of air and water and causes reduced yields of most crops and pasture plants during summer drought. Small grains, most hay crops, and pasture are suited. Yields of row crops, such as corn and tobacco, are not usually satisfactory. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Hampshire silt loam, 12 to 20 percent slopes, eroded (HaD2).—The surface layer of this soil is brown or yellowish-brown silt loam 4 to 7 inches thick. The subsoil is dominantly yellowish-brown, firm, plastic clay mottled in the lower part with pale brown and gray. Fragments of weathered limestone, siltstone, and shale generally occur on the surface and throughout the soil. There are a few outcrops of bedrock. Severely eroded spots are common.

This soil is medium to high in phosphorus and is very strongly acid. It has a medium available water capacity. It is suited to permanent pasture, hay, and small grain. The slope and the low available water capacity make it highly susceptible to further erosion, and consequently, poorly suited to cultivated crops. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Humphreys Series

The Humphreys series consists of deep, well-drained, cherty soils on low stream terraces, toe slopes, and fans along the valleys and streams of the Highland Rim. These soils developed in 3 to 8 feet of alluvium that washed from soils derived mainly from cherty limestone. The slope range is 2 to 12 percent.

Humphreys soils typically have a surface layer of dark-brown cherty silt loam and a subsoil of brown to yellowish-brown cherty silt loam or silty clay loam.

These soils are strongly acid. They have a medium available water capacity. Most of the acreage has been cleared, and about half of it is used for crops and pasture. A few areas have been reforested. The rest of the acreage is idle. If sufficient amounts of lime and fertilizer are added, good pasture can be maintained on these soils. Yields of most of the commonly grown crops are good.

Representative profile of Humphreys cherty silt loam, 5 to 12 percent slopes, one-fourth of a mile east of the Lawrence County line and one-fourth of a mile south of Westside Church:

Ap—0 to 6 inches, dark-brown (10YR 3/3) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; abrupt, wavy boundary.

B1—6 to 11 inches, brown (7.5YR 4/4) cherty silt loam; weak, fine and medium, subangular blocky structure; friable; common fine roots; few, small, dark reddish-brown and black concretions; strongly acid.

B21t—11 to 24 inches, brown (7.5YR 4/4) cherty silty clay loam; moderate, fine and medium, subangular blocky structure; friable; patchy, thin clay films; common fine roots; few, small and medium, black concretions; strongly acid; gradual, wavy boundary.

B22t—24 to 35 inches, yellowish-brown (10YR 5/4) cherty silty clay loam; few, fine, faint mottles of pale brown; moderate, fine and medium, subangular blocky structure; friable; patchy clay films; few fine roots; few, small and medium, strong-brown and black concretions; strongly acid; gradual, wavy boundary.

B3—35 to 50 inches +, yellowish-brown (10YR 5/4) cherty silty clay loam; common, fine and medium, distinct mottles of strong brown, brownish yellow, pale brown, and light brownish gray; weak, medium, subangular and angular blocky structure; friable; few fine roots; few, small, black and strong-brown concretions; strongly acid.

The B horizon is brown, yellowish brown, or strong brown in hues of 7.5YR and 10YR. The clay content of the B horizon ranges from about 20 to 30 percent.

Humphreys cherty silt loam, 2 to 5 percent slopes (HuB).—The surface layer of this soil is 6 to 10 inches thick. It is dominantly dark-brown cherty silt loam. The subsoil ranges from yellowish brown to brown in color and from cherty silt loam to cherty silty clay loam in texture. In places there are a few gray mottles in the lower part of the subsoil. The chert content ranges from about 15 percent to 40 percent and generally increases as depth increases. The content of chert is fairly low in a few areas where the parent material contained a large amount of silty material washed from soils that developed in loess.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. If sufficient amounts of lime and fertilizer are used, good yields of most of the commonly grown crops can be produced and good stands of pasture can be maintained. In most places chert interferes somewhat with cultivation. (Capability unit IIe–3; woodland group 2; wildlife group 2)

Humphreys cherty silt loam, 5 to 12 percent slopes (HuC).—The surface layer of this soil is dark-brown cherty silt loam 4 to 8 inches thick. The subsoil is yellowish-brown to brown cherty silty clay loam. In a few places this soil contains a large amount of silty material that washed from soils developed in loess. A few areas are severely eroded. The surface soil in severely eroded areas is generally lighter colored and slightly more clayey.

This soil is strongly acid. It has a medium available water capacity. If sufficient amounts of lime and fertilizer are used, yields of most of the commonly grown crops and pasture plants are good. In most places chert interferes somewhat with tillage. (Capability unit IIIe–2; woodland group 2; wildlife group 2)

Inman Series

The Inman series consists of moderately deep, clayey soils on hillsides in the outer part of the Central Basin. These soils developed in material weathered from phosphatic, shaly limestone. They occur in small tracts, generally less than 5 acres in size. The slope range is about 10 to 25 percent.

Inman soils typically have a surface layer of dark grayish-brown or yellowish-brown silty clay, about 6 inches thick, and a subsoil of yellowish-brown or olive-brown, plastic silty clay or clay.

These soils are commonly medium acid or strongly acid in the upper part of the profile and medium acid to slightly acid in the lower part. Most of the acreage is idle or is used for pasture.

Representative profile of Inman silty clay, 10 to 25 percent slopes, severely eroded, about 500 yards east of cloverleaf at junction of Interstate Highway 65 and State Highway 7:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silty clay; many streaks and pockets of yellowish brown (10YR 5/4); moderate, medium, granular structure; firm; many fine roots; common sandy rock fragments ¼ inch to 1 inch in size; strongly acid; clear, smooth boundary.

Bt—6 to 15 inches, yellowish-brown (10YR 5/4) silty clay; weak, medium, subangular blocky structure; firm; common clay films; common fine roots; few sandy rock fragments ¼ inch to 1 inch in size; few, small, dark-brown and black concretions; strongly acid; clear, wavy boundary.

C1—15 to 27 inches, light olive-brown (2.5Y 5/4) clay with many fine mottles of light yellowish brown and pale brown; moderate, medium and thick, platy structure; very firm, sticky and plastic; few fine roots; few soft fragments of shale; few, small and medium, black concretions; medium acid; clear, wavy boundary.

C2—27 to 33 inches, gray (N 6/0) clay; common, medium and coarse, distinct mottles of strong brown (7.5YR 5/6) and olive gray (5Y 4/2); coarse, platy structure; very firm, sticky and plastic; common fragments of soft shale; common black concretions; slightly acid.

R—33 inches, phosphatic sandy limestone interbedded with shale.

In most places the depth to bedrock is between 18 and 40 inches. The B horizon is yellowish brown or olive brown in hues of 10YR and 2.5Y.

Inman silty clay, 10 to 25 percent slopes, severely eroded (InD3).—The surface layer of this soil is yellowish-brown or dark grayish-brown silty clay about 6 inches thick. The subsoil is yellowish-brown plastic clay, ordinarily about 10 inches thick. Slabs of hard and soft phosphatic limestone are scattered on the surface and throughout the profile. The depth to rock is uneven. In some places rock is at the surface, but only a few feet away are pockets of soil as much as 3 feet deep. Included in the areas mapped are a few small, uneroded tracts where the surface layer is silt loam. These included areas are wooded.

This soil is medium to high in phosphorus and about medium acid. It has a low available water capacity. The root zone is ordinarily less than 20 inches thick. Yields of nearly all crops are low. Pasture and woodland are suitable uses. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Lanton Series

The Lanton series consists of black, somewhat poorly drained soils on first bottoms, in depressions, and along small drainageways. These soils developed in 3 to about 8 feet of alluvium that washed from upland soils derived chiefly from phosphatic limestone. They have a fairly high, fluctuating water table. The slope range is 0 to 2 percent. Most areas of these soils are subject to flooding and ponding.

Lanton soils typically have a surface layer of black or very dark brown silt loam. This is underlain by black to dark-gray silty clay loam.

These soils are naturally fertile. They are medium to high in phosphorus, moderately high in organic-matter content, and slightly acid to neutral. They are well suited to most summer annuals but are not suited to most deep-rooted legumes because of wetness and the periodically high water table. Nearly all of the acreage is used for crops and pasture.

Representative profile of Lanton silt loam, about 1½ miles east of Bethel, and 50 yards west of Griffin Branch:

Ap—0 to 8 inches, very dark brown (10YR 2/2) silt loam; moderate, fine, granular structure; friable; many fine roots; slightly acid; abrupt, smooth boundary.

A12—8 to 18 inches, black (10YR 2/1) silty clay loam; moderate, fine, granular structure; friable; common fine roots; few, small, black and dark-brown concretions; neutral; clear, smooth boundary.

A13—18 to 24 inches, very dark gray (10YR 3/1) silty clay loam; moderate, fine and medium, granular structure; firm; few fine roots; common, small, black and dark-brown concretions; neutral; clear, smooth boundary.

A14—24 to 28 inches, very dark gray (10YR 3/1) silty clay loam with few, fine, distinct mottles of light olive brown and olive brown; moderate, medium, granular structure; firm; common, small, dark-brown and black concretions; neutral; gradual, wavy boundary.

Cg—28 to 48 inches +, dark-gray (N 4/0) silty clay loam or clay; common, medium, distinct mottles of olive brown and dark yellowish brown; massive; firm, sticky and plastic; many, small and medium, dark-brown and black concretions; neutral.

The A horizon ranges from 24 to 30 inches in thickness. In places the Ap horizon is very dark grayish brown (10YR 3/2), very dark gray (10YR 3/1), or black.

Lanton silt loam (0 to 2 percent slopes) (La).—The surface layer of this soil is dominantly black or very dark brown silt loam, covered in places by 4 to 8 inches of brown recent overwash. In some places the surface layer is silty clay loam. The color of the underlying material ranges from black to dark gray, and the texture from silty clay loam or silt loam in the upper part to clay in the lower part. Generally, the lower part of the subsoil is finer textured, grayer, and more highly mottled than the rest of the profile.

This soil is naturally fertile, medium to high in phosphorus, and slightly acid to neutral. Its use is somewhat restricted by a fairly high water table, a hazard of flooding, and short periods of ponding. Hard clods form if the soil is worked when too wet. Corn, grain sorghum, soybeans, and other summer annuals are well suited. Artificial drainage is needed if the soil is used for alfalfa, small grain, cotton, or tobacco. (Capability unit IIw–1; woodland group 6; wildlife group 7)

Lee Series

The Lee series consists of gray, poorly drained soils along streams and in depressions on the Highland Rim. These soils formed in 3 to 6 feet of recent sediments that washed from soils derived from loess and cherty limestone. In places chert fragments occur on the surface and throughout the soil. The slope range is 0 to 1 percent.

Lee soils typically have a surface layer of dark grayish-brown silt loam. The surface layer is underlain by several feet of gray silt loam.

These soils are low in natural fertility and are strongly acid to very strongly acid. Without artificial drainage, they are very poorly suited to cultivated crops but are suited to water-tolerant permanent pasture plants. Most of the acreage is in trees. A few areas have been cleared, but most of these are idle.

Representative profile of Lee silt loam, 5 miles northwest of Campbellsville, along Powdermill Branch:

A1—0 to 3 inches, dark-gray (10YR 4/1) silt loam; few, fine and medium, distinct mottles of light brownish gray; weak, fine, granular structure; very friable; many fine and medium tree roots; common, small, yellowish-brown concretions; strongly acid; abrupt, smooth boundary.

A2—3 to 9 inches, dark grayish-brown (2.5Y 4/2) silt loam with common, medium, distinct mottles of light brownish gray and dark gray; weak, fine, granular structure; friable; many fine and medium tree roots; common, small and medium, yellowish-brown concretions; very strongly acid; clear, smooth boundary.

B1g—9 to 16 inches, mottled gray (N 6/0) and olive-gray (5Y 5/2) silt loam; weak, fine, granular structure; friable; common fine and medium tree roots; common, medium, yellowish-brown concretions; very strongly acid; clear, wavy boundary.

B2g—16 to 23 inches, light-gray (10YR 6/1) silt loam; few, medium and coarse, yellowish-brown and light olive-brown mottles; weak, fine, granular structure; friable; few chert fragments ½ inch to 2 inches in size; very strongly acid; clear, wavy boundary.

Cg—23 to 40 inches +, dark-gray (5Y 4/1) cherty silt loam; friable; chert or gravel makes up about 35 percent of the horizon; very strongly acid.

In places the Cg horizon does not contain chert or gravel.

Lee silt loam (0 to 1 percent slopes) (le).—The surface layer of this soil is dark grayish-brown silt loam 8 to 12 inches thick. It overlies light-gray silt loam that is mottled with yellowish brown, light olive brown, and dark gray. In places chert fragments occur on the surface and throughout the soil.

This soil is low in natural fertility and is strongly acid to very strongly acid. It has a high water table. Runoff is slow to very slow, and in most places the soil is continuously waterlogged by seepage from adjacent steep slopes and from springs. This soil is suited to permanent pasture and hay, but without artificial drainage it is poorly suited to most cultivated crops. If it is drained and liberal amounts of lime and fertilizer are added, yields of summer annual crops and pasture plants are fair to good. (Capability unit IIIw–1; woodland group 6; wildlife group 7)

Lobelville Series

The Lobelville series consists of moderately well drained, loamy soils along small creeks, branches, and in depressions on the Highland Rim. These soils formed in 3 to 8 feet of recent alluvium that washed from soils derived from cherty limestone and loess. About three-fourths of the acreage is cherty. The slope range is 0 to 2 percent.

Lobelville soils typically have a surface layer of brown or dark grayish-brown silt loam or cherty silt loam. They have a subsoil of mottled dark grayish-brown to pale-brown or gray silt loam to cherty silty clay loam.

These soils are moderately fertile and are strongly acid to very strongly acid. They have a medium to very high available water capacity. An intermittently high water table and susceptibility to flooding or ponding somewhat limit their use. Chert makes tillage somewhat difficult in most areas. About half of the acreage is used for crops and pasture.

Representative profile of Lobelville cherty silt loam, about 2 miles east of Fall River, along Shannon Creek:

Ap—0 to 7 inches, brown (10YR 4/3) cherty silt loam; weak; fine, granular structure; very friable; common fine roots; few, small, dark-brown and black concretions; strongly acid; clear, smooth boundary.

B1—7 to 18 inches, brown (10YR 5/3) cherty silt loam; common, fine, faint mottles of grayish brown and pale brown; weak, fine, granular structure; very friable; few fine roots; few, small, black and brown concretions; strongly acid; gradual, wavy boundary.

B2—18 to 30 inches, mottled grayish-brown (10YR 5/2) and pale-brown (10YR 6/3) cherty silt loam; weak, fine, granular structure; friable; common, small and medium, black, dark-brown, and yellowish-brown concretions; strongly acid; gradual, wavy boundary.

Cg—30 to 40 inches +, gray (10YR 5/1) cherty silt loam; friable; many, small and medium, dark-brown, reddish-brown, and black concretions; very strongly acid.

The Ap horizon is brown, dark grayish brown, or dark yellowish brown.

Lobelville cherty silt loam (0 to 2 percent slopes) (lh).—The uppermost 18 to 20 inches of this soil consists of brown or dark grayish-brown, very friable cherty silt loam. Below this is mottled grayish-brown, pale-brown, and gray cherty silt loam or cherty silty clay loam.

This soil has a strongly acid surface layer and subsoil. It has a medium available water capacity. Most of the acreage is in narrow strips in valleys adjacent to cherty soils on steep uplands and is not easily accessible to farm machinery. For this reason, only about one-third of the acreage has been cultivated. Most cleared areas are used for pasture or are idle. A few of the more easily accessible areas are being cropped. With artificial drainage, areas that are not subject to flooding are suited to all kinds of crops commonly grown. Without artificial drainage, yields of most kinds of crops commonly grown are fair. Chert on the surface and throughout the soil interferes somewhat with tillage. (Capability unit IIs–1; woodland group 1; wildlife group 1)

Lobelville silt loam (0 to 2 percent slopes) (lo).—The uppermost 18 to 20 inches of this soil consists of dark

grayish-brown to brown, friable silt loam. Below this is dominantly brown silt loam mottled with gray, yellow, and olive.

This soil has a strongly acid surface layer and subsoil. It has a very high available water capacity. Runoff is slow and ponding is common, especially in depressions. A high water table keeps the soil wet for long periods. Even without artificial drainage, however, yields of most kinds of crops commonly grown are high. Artificial drainage increases yields and makes the soil suitable for such crops as tobacco and small grains. Nearly all of the cleared acreage is used for crops and pasture. A fairly large acreage is idle. (Capability unit I–2; woodland group 1; wildlife group 1)

Lynnville Series

The Lynnville series consists of deep, moderately well drained, dark-brown, loamy soils (fig. 9) on first bottoms, along small drainageways, and in depressions. These soils formed in recent alluvium, about 3 to 10 feet thick, that washed from upland soils derived from cherty limestone, loess, and phosphatic limestone. The slope range is 0 to 2 percent. Nearly half the acreage is cherty.

Lynnville soils typically have a layer of dark-brown cherty silt loam or silt loam overlying mottled, cherty or noncherty silt loam or silty clay loam.

Figure 9.—**Profile of Lynnville cherty silt loam.**

These soils are naturally fertile and are medium acid to neutral. Yields of many crops are high. Most of the acreage is used for crops and pasture.

Representative profile of Lynnville silt loam, about 5 miles west of Pulaski, along Richland Creek:

Ap—0 to 9 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; many fine roots; few, small, soft, dark-brown and black concretions; slightly acid; clear, smooth boundary.

A12—9 to 14 inches, dark-brown (10YR 3/3) silt loam; common, fine, faint mottles of brown; weak, fine, granular structure; very friable; many fine roots; few, small, soft, dark-brown and black concretions; slightly acid; clear, wavy boundary.

A13—14 to 24 inches, dark-brown (10YR 3/3) silt loam with common, fine and medium, distinct mottles of grayish brown and brown; weak, fine, granular structure; very friable; common fine roots; few, small and medium, soft, dark-brown and black concretions; slightly acid; gradual, wavy boundary.

C1—24 to 45 inches, mottled brown (10YR 5/3), grayish-brown (2.5Y 5/2), dark yellowish-brown (10YR 4/4), and dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; friable; few fine roots in upper part; few, small and medium, soft, dark-brown and black concretions; slightly acid; gradual, wavy boundary.

C2—45 to 65 inches +, mottled grayish-brown (2.5Y 5/2), yellowish-brown (10YR 5/4), and light-gray (10YR 6/2) silt loam; weak, fine, granular structure to massive; friable; many, small and medium, soft, dark-brown and black concretions; slightly acid.

The A horizon ranges from 10 to 24 inches in thickness. The dominant color is dark brown, but in places it is very dark grayish brown in hues of 7.5YR. The soil material between depths of 10 and 40 inches is about 18 to 30 percent clay and about 5 to 15 percent sand with some coarse fragments.

Lynnville cherty silt loam (0 to 2 percent slopes) (lt).—The uppermost 18 to 24 inches of this soil consists of dark-brown cherty silt loam. Below this is mottled dark grayish-brown, gray, and yellowish-brown cherty silt loam or cherty silty clay loam. In a few places a hard, compact, cherty or gravelly layer occurs in the lower part of the subsoil. This soil is fairly extensive along the smaller streams that rise in the uplands.

This soil is medium to high in phosphorus and is medium acid to neutral. It has a medium available water capacity. Permeability is rapid, but a high water table keeps the soil saturated during rainy periods.

This soil is suited to nearly all kinds of commonly grown crops and pasture plants. Chert on the surface and throughout the profile interferes somewhat with tillage. (Capability unit IIs–1; woodland group 1; wildlife group 1)

Lynnville silt loam (0 to 2 percent slopes) (ly).—The uppermost 20 to 24 inches of this soil consists of dark-brown silt loam. Below this is mottled yellowish-brown, dark grayish-brown, and gray silt loam or silty clay loam. In many places there are some chert fragments or gravel in the profile, and in a few places the lower horizons contain concretions. The broadest areas of this soil are along the larger streams. A large acreage occurs in small areas along the smaller streams and drainageways and in depressions. Most areas on first bottoms are subject to flooding, and areas in depressions are subject to short periods of ponding.

This soil is medium to high in phosphorus and is medium acid to neutral. It has a very high available water capacity. An intermittently high water table keeps the soil wet for

fairly long periods. Yields of most crops and pasture plants are high. (Capability unit I–2; woodland group 1; wildlife group 1)

Made Land

Made land (Ma) consists of areas that have been filled with earth, rock, trash and other debris, then smoothed. Most of the areas are in and around Pulaski and other urban centers. They consist mainly of earth and rock fills resulting from leveling or landscaping of building sites. A few areas along Interstate Highway 65 consist of material from both fills and road cuts. The soil material is variable. (Not assigned to a capability unit; woodland group 8; wildlife group 10)

Maury Series

The Maury series consists of deep, well-drained, phosphatic soils (fig. 10) on uplands and high stream terraces along Richland Creek and the Elk River. These soils formed in residuum weathered from phosphatic limestone, in old valley fill, or in sediments deposited by streams. In many places the upper part of the profile contains a considerable amount of loess. In places a few chert fragments or pebbles occur on the surface. Areas of these soils on terraces are commonly underlain by beds of gravel below a depth of 4 feet. The slope range is 2 to 20 percent.

Maury soils typically have a surface layer of dark-brown silt loam and a subsoil of reddish-brown, yellowish-red, or red silty clay loam, silty clay, or clay.

These soils are medium to high in phosphorus and are medium acid to strongly acid. Most of the acreage is used for crops and pasture. Yields of the commonly grown crops and pasture plants are high.

Representative profile of Maury silt loam, 2 to 5 percent slopes, about three-fourths of a mile west of Elkton, on Elkton-Prospect Road:

Ap—0 to 7 inches, dark-brown (7.5YR 3/2) silt loam; weak, fine, granular structure; very friable; common fine roots; strongly acid; clear, smooth boundary.

B1—7 to 15 inches, reddish-brown (5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; common fine roots; strongly acid; clear, smooth boundary.

B21t—15 to 32 inches, yellowish-red (5YR 4/6) heavy silty clay loam; moderate, medium, angular and subangular blocky structure; friable; patchy, thick clay films; few fine roots; common, small, black concretions; strongly acid; gradual, smooth boundary.

B22t—32 to 47 inches, yellowish-red (5YR 4/6) to red (2.5YR 4/6) silty clay; strong, medium, angular blocky structure; friable; continuous, thick clay films; common, small, black concretions; strongly acid; gradual, smooth boundary.

B23t—47 to 60 inches +, red (2.5YR 4/6) silty clay; moderate, medium, subangular blocky structure; friable; patchy, thick clay films; few, small, black concretions; strongly acid.

The A horizon is dark brown or very dark grayish brown in hues of 10YR and 7.5YR. The major part of the B horizon is red, yellowish red, or reddish brown in hues of 5YR and 2.5 YR. The clay content of the B1 and B21t horizons ranges from 35 to 45 percent, but ordinarily it is about 40 percent. The depth to bedrock generally ranges from 4 to 15 feet, but bedrock crops out in some areas.

Maury silt loam, 2 to 5 percent slopes (MbB).—The surface layer of this soil consists of 5 to 10 inches of dark-brown silt loam. The upper part of the subsoil is generally reddish-brown silty clay loam, and the lower part is yellowish-red to red clay. In places a few chert fragments or pebbles occur on the surface. Areas of this soil on terraces are commonly underlain by beds of gravel. Included in the areas mapped are a few severely eroded areas where the surface layer is dark reddish-brown heavy silt loam or silty clay loam.

Figure 10.—**Profile of a Maury soil that formed in mixed alluvium.**

This soil is medium to high in phosphorus and medium acid to strongly acid. It has a high available water capacity. It is suited to many kinds of crops and pasture plants and is especially well suited to alfalfa and other deep-rooted legumes. Tilth is generally good. The root zone is deep. (Capability unit IIe–1; woodland group 2; wildlife group 2)

Maury silt loam, 5 to 12 percent slopes, eroded (MbC2).—This soil has a dark-brown surface layer 4 to 7 inches thick. In places it contains yellowish-red to red silty clay loam or silty clay from the subsoil. In places a few chert fragments or pebbles occur on the surface. A few patches are severely eroded, and in these places the surface layer is silty clay loam. In many places beds of gravel underlie areas of this soil on terraces. A few areas, mostly along the Elk River, have a surface layer of reddish-brown heavy silt loam and a subsoil of red to dark-red silty clay or clay. Bedrock crops out in a few places.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has a medium available water capacity. Tilth is good. All crops and pasture plants commonly grown produce good yields; deep-rooted legumes, such as alfalfa, are especially well suited. Under intensive use, erosion is a severe hazard. (Capability unit IIIe–1; woodland group 2; wildlife group 2)

Maury silt loam, 12 to 20 percent slopes, eroded (MbD2).—The surface layer of this soil consists of 4 to 7 inches of dark-brown silt loam and the subsoil of yellowish-red or red silty clay loam or silty clay. In places a few pebbles are scattered on the surface and throughout the profile. In many places the soil is underlain by beds of gravel at a depth of 4 or 5 feet.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has a medium available water capacity. The common crops and pasture plants can be grown, including deep-rooted legumes, such as alfalfa. The slope causes rapid runoff and a severe erosion hazard. (Capability unit IVe–1; woodland group 2; wildlife group 2)

Mercer Series

The Mercer series consists of moderately well drained, loamy soils that have a fragipan. These soils are widely scattered throughout the county on terraces along the larger streams. They developed in alluvium, about 3 to 10 feet thick, that washed from soils derived chiefly from phosphatic limestone. The slope range is 0 to 5 percent.

Mercer soils typically have a surface layer of dark-brown silt loam. Their subsoil is generally friable, yellowish-brown silty clay loam that is mottled and compact beginning at a depth of about 24 inches.

These soils are medium to high in phosphorus and medium acid to strongly acid. Most of the areas have been cleared and are used for crops and pasture. They produce high yields of many crops.

Representative profile of Mercer silt loam, 2 to 5 percent slopes, about 1 mile north of Elkton along Interstate Highway 65:

Ap—0 to 9 inches, dark-brown (10YR 3/3) silt loam; weak, fine, granular structure; very friable; many fine roots; few, small, black and dark-brown concretions; strongly acid; clear, smooth boundary.

B1—9 to 14 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, medium, subangular blocky structure; friable; common fine roots; few, small, black concretions; strongly acid; clear, smooth boundary.

B2—14 to 24 inches, yellowish-brown (10YR 5/4) silty clay loam; moderate, medium, subangular blocky structure; friable; few fine roots; common, small and medium, black and dark-brown concretions; strongly acid; gradual, smooth boundary.

Bx1—24 to 28 inches, mottled pale-brown (10YR 6/3) and yellowish-brown (10YR 5/4) silt loam; weak, medium, angular blocky structure; firm and slightly brittle; few fine roots; many, medium and large, black and dark-brown concretions; strongly acid; clear, wavy boundary.

Bx2—28 to 34 inches, mottled yellowish-brown (10YR 5/6), pale-brown (10YR 6/3), and light brownish-gray (10YR 6/2) silty clay loam; weak, medium, angular blocky structure; firm and compact when moist, hard and brittle when dry; few clay films; many, small and medium, strong-brown and black concretions and concretionary stains along cracks; few small chert pebbles; strongly acid; clear, wavy boundary.

Bx3—34 to 44 inches, mottled yellowish-brown (10YR 5/6), light brownish-gray (2.5Y 6/2), and pale-brown (10YR 6/3) silty clay loam; weak, medium and coarse, angular blocky structure; very firm and compact when moist, hard and brittle when dry; common clay films; many, small and medium, black and dark-brown concretions and concretionary stains along cracks; few chert pebbles ½ to 1 inch in size; strongly acid; gradual, wavy boundary.

Cx—44 to 50 inches +, mottled gray (10YR 6/1), light brownish-gray (2.5Y 6/2), and yellowish-brown (10YR 5/6) cherty silt loam; massive; very firm and compact when moist, hard when dry; strongly acid.

The color of the A horizon is dominantly dark brown (10YR 3/3) or brown (10YR 4/3), but in places it is dark grayish brown (10YR 4/2) or brown (10YR 5/3). The B1 and B2 horizons range from yellowish brown to strong brown in color and from silt loam to silty clay loam in texture. The depth to the fragipan ranges from 18 to 30 inches.

Mercer silt loam, 0 to 2 percent slopes (McA).—In this soil a fragipan begins at a depth of 20 to 30 inches. The surface layer is dark-brown silt loam, and the subsoil is yellowish-brown silty clay loam. The fragipan is mottled. In most places this soil has thicker layers and is less well drained than Mercer soils on stronger slopes.

This soil is moderate in natural fertility and is strongly acid. It is medium to high in available phosphorus. Runoff is slow. The fragipan restricts root penetration and the movement of air and water and causes the soil to hold excess water in winter and spring.

This soil is suited to corn, cotton, and soybeans but not to tobacco or alfalfa. Row crops can be grown year after year. Yields of most crops are fair to high. Yields of small grain are high except where water stands on the surface. (Capability unit IIw–2; woodland group 5; wildlife group 6)

Mercer silt loam, 2 to 5 percent slopes (McB).—In this soil a fragipan begins at a depth of 20 to 30 inches. The surface layer consists of 8 to 12 inches of dark-brown silt loam. The fragipan consists of yellowish-brown, compact silty clay loam mottled with gray and olive. In most places the slopes are concave and are dominantly 2 to 3 percent. The soil frequently receives deposits of sediments. In places there is a little gravel or chert on the surface and throughout the upper part of the soil mass. In a few places the soil contains thin layers of sand, gravel, or chert at a depth below 3 feet.

This soil is medium to high in phosphorus and medium acid to strongly acid. It is easy to work. It is suited to shallow-rooted crops but, because of the fragipan, is poorly suited to alfalfa and other deep-rooted plants. Because of the mild slope, a short cropping system can be used. (Capability unit IIe–2; woodland group 5; wildlife group 6)

Mercer silt loam, 2 to 5 percent slopes, eroded (McB2).—In this soil a fragipan begins at a depth of 18 to 24 inches. The surface layer is dark-brown silt loam, and the subsoil is yellowish-brown silty clay loam mottled with gray in the lower part. In places there is a little chert or gravel on the surface and throughout the profile. Included in the areas mapped are a few severely eroded patches where the surface layer is lighter brown and slightly more clayey. Also included are a few areas where the slope is as much as 12 percent.

This soil is medium to high in phosphorus and medium acid to strongly acid. It is easy to work and is suited to most kinds of crops commonly grown. The fragipan causes this soil to hold excess water in winter and spring; consequently, yields of alfalfa and other deep-rooted perennials are not high. Because of the mild slope, a short cropping system can be used. (Capability unit IIe–2; woodland group 5; wildlife group 6)

Mimosa Series

The Mimosa series consists of well-drained, phosphatic soils on hills in the outer part of the Central Basin. These soils developed in residuum weathered from phosphatic limestone. The slope range is 4 to 40 percent. About three-fourths of the acreage has a thin surface layer of cherty colluvium that moved downslope from cherty soils on uplands. In places there are a few outcrops of rock.

Mimosa soils typically have a surface layer of dark-brown silt loam or cherty silt loam and a yellowish-brown, clayey subsoil. In many steep or eroded areas the surface layer is cherty or clayey and is yellowish brown to dark brown in color.

These soils are medium to high in phosphorus. Generally, they are strongly acid in the upper part and medium acid or slightly acid in the layer next to the rocks. They have a medium to low available water capacity. About 75 percent of the acreage has been cleared and is used for pasture. Some of the less sloping areas are used for crops, but yields are not high. Erosion is a severe hazard if these soils are cultivated.

Representative profile of Mimosa silt loam, 5 miles northwest of Elkton, half a mile north of U.S. Highway 31:

Ap—0 to 6 inches, dark-brown (10YR 3/3) silt loam; moderate, fine and medium, granular structure; friable; many fine roots; few small chert fragments; few, small, rounded, black concretions; strongly acid; abrupt, smooth boundary.

B1t—6 to 8 inches, brown (7.5YR 4/4) silty clay; moderate, medium, angular and subangular blocky structure; firm; continuous clay films; common fine roots; common, small, rounded, black concretions; strongly acid; clear, smooth boundary.

B21t—8 to 22 inches, yellowish-brown (10YR 5/6) to strong-brown (7.5YR 5/6) clay; strong, medium, angular blocky structure; firm; continuous clay films; few fine roots; few small chert fragments; common, small, rounded, black concretions; strongly acid; gradual, smooth boundary.

B22t—22 to 31 inches, strong-brown (7.5YR 5/8) clay with common, fine and medium, distinct mottles of yellowish brown and light yellowish brown; strong, medium and coarse, subangular blocky structure; firm; continuous clay films; few weathered chert fragments; common, small and medium, black concretions; strongly acid; gradual, smooth boundary.

B3t—31 to 45 inches, yellowish-brown (10YR 5/6) clay with many, fine and medium, distinct mottles of strong brown, pale brown, and light yellowish brown; massive; firm; few, small and medium, black concretions; medium acid.

R—45 inches +, argillaceous phosphatic limestone.

The A horizon ranges from dark brown to brown. The B horizon is yellowish brown, strong brown, or brown in hues of 7.5YR and 10YR. It is about 60 percent clay. The depth to bedrock is between 3 and 8 feet in most places, but there are a few outcrops of bedrock.

Mimosa silt loam, 4 to 12 percent slopes, eroded (MoC2).—The plow layer of this soil consists of 4 to 6 inches of dark-brown silt loam. The subsoil is yellowish-brown, plastic clay, and in most places there are a few mottles of light yellowish brown, pale brown, and gray in the lower part. A few patches are severely eroded, and in these places the surface layer is yellowish-brown silty clay.

This soil is medium to high in phosphorus and is medium acid to strongly acid. The subsoil restricts the movement of air and water. In most years yields of row crops and summer annuals are low. Yields of pasture, small grains, and hay crops are medium. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Mimosa silt loam, 12 to 20 percent slopes, eroded (MoD2).—This soil occurs on low hills and ridges and on foot slopes. The surface layer consists of 4 to 8 inches of dark-brown silt loam and the subsoil of yellowish-brown, firm, sticky and plastic clay. A few patches are severely eroded, and in these places the surface layer is yellowish-brown silty clay. In a few wooded areas, the surface layer is dark-brown silt loam 8 to 14 inches thick. The depth to bedrock generally is between 3 and 6 feet, but bedrock crops out in places.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has medium available water capacity. The subsoil is slowly permeable. The slope and the slow permeability in the subsoil cause rapid runoff and difficulty in controlling erosion in cultivated areas. Permanent pasture and hay are suited to this soil, and yields are good. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Mimosa cherty silt loam, 5 to 12 percent slopes, eroded (MmC2).—This soil is on rolling hills and foot slopes. The surface layer consists of 4 to 8 inches of dark-brown cherty silt loam, and in many places the plow layer contains yellowish-brown plastic clay from the subsoil. A few patches are severely eroded, and in these places the surface layer is yellowish-brown cherty silty clay. The depth to limestone bedrock generally is between 3 and 6 feet, but in places there are a few outcrops of rock.

This soil is medium to high in phosphorus and is strongly acid. It has medium available water capacity. It is well suited to pasture, small grains, and hay crops. Yields of summer annuals are medium or low. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Mimosa cherty silt loam, 12 to 20 percent slopes (MmD).—This soil commonly occurs on foot slopes of steep, cherty hills. The surface layer consists of 4 to 10 inches of dark-brown cherty silt loam, mainly colluvium that washed or rolled from adjoining cherty soils. The subsoil is dominantly yellowish-brown, plastic clay, but in a few places its color is yellowish red. A few patches are severely eroded, and in these places the surface layer is yellowish-brown cherty silty clay. Bedrock crops out in a few places.

This soil is medium to high in phosphorus and is strongly acid. It has medium available water capacity. It is well suited to hay and most pasture plants. It is poorly suited to row crops and summer annuals, and yields are medium to low. About three-fourths of the acreage is used for pasture, and the rest is used for cultivated crops. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Mimosa cherty silt loam, 20 to 30 percent slopes (MmE).—This soil occurs on the lower slopes of steep hills. The surface layer consists of 4 to 8 inches of dark-brown cherty silt loam, mainly colluvium that washed or rolled from cherty soils on slopes above it. The subsoil consists of sticky and plastic, yellowish-brown clay. A few patches are severely eroded, and in these places the surface layer is yellowish-brown cherty silty clay. Rock crops out in a few places.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It has medium available water capacity. It is suited to the kinds of pasture plants commonly grown in the county. Slope, chertiness, and susceptibility to erosion make it poor for cultivated crops. About half of the acreage is used for pasture. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Mimosa cherty silty clay, 5 to 20 percent slopes, severely eroded (MnD3).—This soil is on rolling hills and foot slopes. The plow layer consists of 3 to 5 inches of brown cherty silty clay, and in many places it contains yellowish-brown clay from the subsoil. Chert fragments on the surface are more numerous than in less severely eroded areas.

Shallow gullies are common, and there are a few deep gullies. The depth to limestone bedrock generally is between 3 and 6 feet, but in many places there are a few outcrops of rock.

This soil is medium to high in phosphorus and is strongly acid. It has a low available water capacity. It is suited to permanent pasture and hay, but yields are generally low. Poor tilth, chertiness, and a high content of clay make this soil poorly suited to cultivated crops. Most areas are in pasture or are idle. (Capability unit VIe–2; woodland group 4; wildilfe group 3)

Mimosa cherty silty clay, 20 to 30 percent slopes, severely eroded (MnE3).—This soil is on the lower slopes of steep hills. The surface layer consists of brown cherty silty clay. Shallow gullies are common, and there are a few deep gullies. Phosphatic limestone bedrock crops out in places.

This soil is medium to high in phosphorus and is strongly acid. It has a low available water capacity. Many areas are fairly well suited to permanent pasture, but slope, poor tilth, and a severe erosion hazard cause difficulty in establishing and maintaining good pasture. Much of the acreage is used for pasture, but woodland is a better use. Many of the areas have reforested naturally, chiefly to black locust. (Capability unit VIIe–1; woodland group 4; wildlife group 3)

Mimosa silty clay, 5 to 20 percent slopes, severely eroded (MpD3).—This soil occurs on short hillsides and narrow hilltops in the Central Basin. The plow layer is yellowish-brown, plastic silty clay. The subsoil is yellowish-brown, firm, plastic clay, through which water drains slowly. Patches of less severely eroded soil occur within larger areas, and in these places the surface layer is dark-brown silt loam. There are a few shallow gullies. Rock crops out in a few places.

This soil is medium to high in phosphorus and is medium acid to strongly acid. Tillage is difficult because the surface layer is clayey. Yields of permanent pasture are fair to medium, but yields of most other crops are low. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Mimosa-Ashwood very rocky complex, 5 to 20 percent slopes (MsD).—This complex consists of very rocky areas in which outcrops of limestone cover 5 to 30 percent of the surface. The soil material between the outcrops is variable. About half of each area consists of Mimosa soils and half of Ashwood soils. The Mimosa soils have a thin surface layer of dark-brown silt loam and a subsoil of yellowish-brown clay. The Ashwood soils have a surface layer consisting of 10 to 12 inches of nearly black silty clay loam and a subsoil of yellowish-brown clay.

These soils are low in plant nutrients, except phosphorus. They have a low available water capacity. They are poorly suited to cultivated crops but fairly well suited to pasture plants. About two-thirds of the acreage has been cleared and is used for pasture. In most places the rock outcrops cause difficulty in mowing and clipping. The trees in wooded areas are mainly hickory, cedar, hackberry, and elm. (Capability unit VIs–2; woodland group 8; wildlife group 4)

Mimosa-Ashwood very rocky complex, 20 to 40 percent slopes (MsF).—This complex consists of very rocky areas in which outcrops of limestone and shale cover 5 to 35 percent of the surface. The soil material between the outcrops is variable. It ranges in thickness from a few inches to several feet. About two-thirds of each area consists of Mimosa soils and one-third of Ashwood soils. The Mimosa soils occur in large areas. They have a surface layer of dark-brown silt loam and a subsoil of yellowish-brown clay. The Ashwood soils occur in small areas. They have a surface layer of black silty clay loam and a subsoil of yellowish-brown clay. In many places chert fragments occur on the surface and throughout the surface layer. Many of the areas are severely eroded.

These soils are low in plant nutrients, except phosphorus. They have a low available water capacity. They are not suited to crops and only poorly suited to pasture because of the slope and the rock outcrops. Fair permanent pasture can be grown in some areas, but most of the acreage is better suited to trees. About three-fourths of the acreage is wooded. The trees are chiefly cedar, hickory, hackberry, and black locust. Most of the cleared acreage is in unimproved pasture. (Capability unit VIIs–1; woodland group 8; wildlife group 4)

Mine Pits and Dumps

Mine pits and dumps (Mt) consists of excavations, open pits, and uneven accumulations or piles of waste or debris. These areas range from 1 acre to 200 acres in size. Most areas consist of land that has been strip mined for phosphate. They have been excavated to a depth of 6 feet to more than 20 feet, and the overburden has been dumped in rough, uneven rows or mounds. Small areas that have been excavated for chert and fill material are scattered throughout the county. Included in the areas mapped are limestone quarries and city dumps.

Access to most of the areas mined for phosphate is difficult, and the soil material is poorly suited to crops and pasture. Without reclamation, most of the areas cannot be used for crops or pasture, but many can be reclaimed for pasture, and some for crops. Dense volunteer growths of black locust cover areas that have been idle for 3 years or more after being mined. (Not assigned to a capability unit; woodland group 8; wildlife group 10)

Mined Land, Reclaimed

Mined land, reclaimed (Mu) consists of filled and smoothed excavations and dumps resulting from strip mining for phosphate. These areas range from 1 acre to more than 100 acres in size. The soil material consists mainly of a mixture of the original surface soil, the parent material, and fragments of limestone. Outcrops of limestone bedrock are common in some places, but in other places there is practically no rock at all. The slope ranges from 0 to 20 percent but is dominantly 2 to 12 percent.

The soil material is strongly acid. It is low in organic-matter content. Most of the rock-free areas are smooth enough to cultivate and are fairly well suited to the commonly grown crops. The rougher, more irregularly shaped, and rockier areas are suited to pasture and hay crops. Most of the acreage is used for pasture. A few of the more rocky areas are probably best suited to trees. (Not assigned to a capability unit; woodland group 8; wildlife group 2)

Mountview Series

The Mountview series consists of deep, well-drained soils (fig. 11) on broad, rolling and winding ridgetops of the Highland Rim. These soils formed in about 18 to 36 inches of loess underlain by cherty clay. In many places chert occurs on the surface and throughout the surface layer. The slope range is 2 to 12 percent.

Mountview soils typically have a surface layer of brown or yellowish-brown, friable silt loam or cherty silt loam. They have a subsoil of yellowish-brown or strong-brown, friable silt loam or silty clay loam.

These soils are low or very low in natural fertility and are strongly acid to very strongly acid. They respond well to additions of fertilizer and to other good management, and yields of the commonly grown crops are good. Most of the acreage is used for crops and pasture. A fairly large acreage of the cherty silt loams is idle.

Representative profile of Mountview cherty silt loam, 2 to 5 percent slopes, about 1¼ miles north of Scott Hill Church, 25 feet west of intersection, on Hurricane Creek Road:

Ap—0 to 6 inches, brown (10YR 4/3) cherty silt loam; weak, fine, granular structure; very friable; many fine roots; few, small, highly weathered chert fragments ¼ to ½ inch in size; strongly acid; clear, smooth boundary.

B1—6 to 11 inches, yellowish-brown (10YR 5/6) silt loam; weak, fine, granular structure; very friable; many fine roots; few small chert fragments ¼ to ½ inch in size; very strongly acid; clear, wavy boundary.

B21t—11 to 20 inches, strong-brown (7.5YR 5/6) heavy silt loam; weak, medium, subangular blocky structure; friable; thin clay films; common fine roots; few small chert fragments; few, small, dark-brown concretions; very strongly acid; gradual, wavy boundary.

B22t—20 to 30 inches, strong-brown (7.5YR 5/6) silty clay loam; moderate, medium, subangular blocky structure; friable; patchy, thin clay films; few fine roots; few small chert fragments; common, small, dark-brown and black concretions; very strongly acid; gradual, wavy boundary.

B23t—30 to 34 inches, mottled dark yellowish-brown (10YR 4/4), pale-brown (10YR 6/3), and yellowish-red (5YR 4/6) silty clay loam; strong, medium, subangular and angular blocky structure; firm; continuous, thin clay films; common chert fragments ½ inch to 2 inches in size; common, small and medium, dark reddish-brown and black concretions; very strongly acid; gradual, wavy boundary.

IIB24t—34 to 50 inches +, mottled dark-red (2.5YR 3/6), strong-brown (7.5YR 5/6), and light yellowish-brown (10YR 6/4) cherty silty clay; strong, coarse, angular blocky structure; firm; continuous clay films; common, dark reddish-brown and black concretions; very strongly acid.

Figure 11.—**Profile of a Mountview cherty silt loam.**

In places the A horizon is dark grayish brown (10YR 4/2), brown (10YR 5/3), or yellowish brown (10YR 5/4). The B horizon ranges from strong brown to yellowish brown. The clay content of the uppermost 20 inches of the B horizon is about 30 percent in an average profile; it ranges from about 25 percent to 35 percent.

Mountview silt loam, 2 to 5 percent slopes (MwB).—The surface layer of this soil consists of 5 to 8 inches of brown silt loam. The subsoil is yellowish-brown light silty clay loam or silt loam. A cherty soil is buried below the subsoil. Included in the areas mapped are a few severely eroded patches where the surface layer is yellowish-brown heavy silt loam. A few weathered chert fragments are scattered on the surface in the eroded areas. Also included in the areas mapped are a few wooded areas where the surface layer is slightly thicker and is a darker brown.

This soil is very low in natural fertility and is strongly acid. It has a high available water capacity. Tilth is good. Crops respond well to lime and fertilizer, and yields of the commonly grown crops and pasture plants are good. (Capability unit IIe–1; woodland group 2; wildlife group 2)

Mountview silt loam, 5 to 12 percent slopes, eroded (MwC2).—The plow layer of this soil is brown silt loam. The subsoil is yellowish-brown silt loam or light silty clay loam. A few areas are severely eroded, and in these places the surface layer is a lighter brown and is slightly more clayey. In a few places chert fragments occur on the surface and in the profile.

This soil is very low in natural fertility and is strongly acid. It has a high available water capacity. The root zone is thick. Tillage is easy, and yields of the commonly grown crops are medium to high. Response to management is good, especially to applications of lime and fertilizer. (Capability unit IIIe–1; woodland group 2; wildlife group 2)

Mountview cherty silt loam, 2 to 5 percent slopes (MvB).—The surface layer of this soil consists of 6 to 10 inches of brown, friable cherty silt loam. The subsoil is

Figure 12.—**Burley tobacco on Mountview cherty silt loam, 2 to 5 percent slopes.**

yellowish-brown, friable silty clay loam. In most places the upper 3 feet of the subsoil contains practically no chert. A cherty soil underlies the loess in which this soil formed.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. It is fairly well suited to the commonly grown crops (fig. 12) and pasture plants. Response to lime and fertilizer is good. Tilth is good, but chert in the surface layer interferes somewhat with cultivation. (Capability unit IIe–3; woodland group 2; wildlife group 2)

Mountview cherty silt loam, 5 to 12 percent slopes (MvC).—The surface layer of this soil consists of 8 to 10 inches of brown, very friable cherty silt loam that contains a considerable amount of chert. The subsoil is yellowish-brown silt loam or silty clay loam. In most places the upper 2 to 3 feet of the subsoil contains practically no chert. A cherty soil that formed in material weathered from limestone underlies the loess in which this soil formed.

This soil has a medium available water capacity. If lime and fertilizer are added, yields of most crops and pasture plants are good. Tilth is good, but in most places there is enough chert on the surface to interfere with cultivation. (Capability unit IIIe–2; woodland group 2; wildlife group 2)

Mountview cherty silt loam, 5 to 12 percent slopes, severely eroded (MvC3).—The plow layer of this soil consists of 3 to 5 inches of brown or yellowish-brown cherty silt loam. The subsoil is yellowish-brown silt loam or silty clay loam. Rills and shallow gullies are common. In places deep gullies have cut through the underlying loess, and a buried cherty soil is exposed. In most places there is more chert on the surface and throughout the mantle of loess in which the soil formed than in less severely eroded areas.

This soil is low in natural fertility and is strongly acid. It has a medium available water capacity. It is fairly well suited to most kinds of crops and pasture plants grown in the county. Yields are about medium. (Capability unit IVe–2; woodland group 2; wildlife group 2)

Newark Series

The Newark series consists of somewhat poorly drained soils on bottom lands, along small drainageways, and in depressions. These soils formed in recent alluvium, about 3 to 6 feet thick, that washed from soils derived mainly from phosphatic limestone. They have a high water table, and ponding is common. The slope range is 0 to 1 percent.

Newark soils typically have a surface layer of dark-brown or dark grayish-brown silt loam. They have a subsoil of mottled grayish-brown, yellowish-brown, and gray silt loam or silty clay loam.

These soils are medium to high in phosphorus and are neutral to medium acid. Most of the acreage is used for pasture.

Representative profile of Newark silt loam, 1½ miles northeast of Prospect, along Reed Branch:

Ap—0 to 7 inches, brown (10YR 4/3) silt loam with few, fine, distinct mottles of grayish brown; weak, fine, granular structure; very friable; many fine roots; medium acid; clear, smooth boundary.

B1—7 to 12 inches, grayish-brown (10YR 5/2) silt loam with many, medium and coarse, dark yellowish-brown (10YR 4/4), and yellowish-brown (10YR 5/4) mottles; weak, fine, granular structure; friable; many fine roots; common, small, dark-brown and black concretions; medium acid; gradual, smooth boundary.

B2g—12 to 32 inches, grayish-brown (10YR 5/2) silt loam with many, medium, distinct mottles of yellowish brown and dark gray; weak, fine, granular structure; friable; few fine roots; common, small, black, dark-brown, and reddish-brown concretions; slightly acid; gradual, smooth boundary.

IIA1b—32 to 48 inches +, black (10YR 2/1) clay; massive; firm, sticky and plastic; common, small, black and reddish-brown concretions; slightly acid.

The IIA1b horizon ranges from gray to black in color and from loam to clay in texture.

Newark silt loam (0 to 1 percent slopes) (Ne).—The surface layer of this soil consists of 6 to 10 inches of brown or dark grayish-brown silt loam. The subsoil is mottled grayish-brown, yellowish-brown, and gray silt loam or silty clay loam. In many places, areas on first bottoms are underlain by a black, clayey soil at a depth of 25 to 40 inches. In places chert fragments occur on the surface and throughout the soil.

This soil is medium to high in phosphorus and is neutral to medium acid. It is waterlogged during wet periods, and ponding is common in many places. If it is drained, row crops can be grown year after year, and yields of such summer annuals as corn are good. Without drainage, it can be used for water-tolerant crops and for crops that can be planted late in the season, such as soybeans. (Capability unit IIw–1; woodland group 6; wildlife group 7)

Pickwick Series

The Pickwick series consists of deep, well-drained soils, mainly on broad, gently rolling uplands and ridges of the Highland Rim. These soils formed in a mantle of loess, 2 to 3 feet thick, underlain by several feet of red and dark-red clay that is probably old alluvium. The slope range is 2 to 12 percent.

Pickwick soils typically have a surface layer of brown silt loam. The subsoil grades from strong-brown, yellowish-red, or reddish-brown silty clay loam in the upper part to red and dark-red clay in the lower part.

These soils are fairly low in natural fertility and are strongly acid. They have a high available water capacity. They are suited to many kinds of crops and pasture plants.

Crops respond extremely well to additions of fertilizer and other good management. Yields are high.

Representative profile of Pickwick silt loam, 2 to 5 percent slopes, about 4 miles southeast of Anthony Hill, 150 feet south of Barksdale Ridge Road:

Ap—0 to 7 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; very friable; common fine roots; few chert fragments ¼ inch to 2 inches in size; strongly acid; clear, smooth boundary.

B1—7 to 13 inches, strong-brown (7.5YR 5/6) light silty clay loam; weak, medium, subangular blocky structure; friable; few fine roots; strongly acid; clear, smooth boundary.

B21t—13 to 24 inches, yellowish-red (5YR 4/6) silty clay loam; moderate, medium, subangular blocky structure; friable; patchy clay films; few, small, weathered chert fragments; few, small, black and dark reddish-brown concretions; very strongly acid; gradual, smooth boundary.

B22t—24 to 33 inches, red (2.5YR 4/6) silty clay loam with common, fine and medium, distinct mottles of strong brown and dark red; moderate, medium, subangular blocky structure; friable; continuous clay films; few, small, weathered chert fragments; few, small, black concretions; very strongly acid; gradual, smooth boundary.

B23t—33 to 42 inches, dark-red (10R 3/6) silty clay with common, medium, distinct mottles of yellowish red and grayish brown; moderate, medium, subangular and angular blocky structure; friable; continuous clay films; few weathered chert fragments; few, small and medium, black concretions; very strongly acid; gradual, smooth boundary.

B24t—42 to 58 inches +, dark-red (10R 3/6) cherty clay with common, medium, distinct mottles of brown; strong, medium, angular blocky structure; firm; continuous clay films; few, small, black concretions; very strongly acid.

The A horizon is dark grayish brown or brown in hues of 7.5YR and 10YR. The major part of the B horizon is redder than 7.5YR. The clay content of the uppermost 20 inches of the B horizon ranges from about 27 to 35 percent, but is ordinarily about 32 percent.

Pickwick silt loam, 2 to 5 percent slopes (PcB).—The surface layer of this soil consists of 5 to 10 inches of brown silt loam. The subsoil grades from strong-brown or reddish-brown silty clay loam in the upper part to red and dark-red clay in the lower part. A few areas are eroded. In many places a few chert fragments occur on the surface and throughout the plow layer.

This soil is strongly acid. It has a high available water capacity. Tilth is good, and the soil is easy to work. The root zone is thick. All kinds of crops and pasture plants commonly grown are well suited. Yields are high. (Capability unit IIe–1; woodland group 2; wildlife group 2)

Pickwick silt loam, 5 to 12 percent slopes, eroded (PcC2).—The surface layer of this soil is brown silt loam 4 to 8 inches thick. The subsoil grades from strong-brown or reddish-brown silty clay loam in the upper part to red and dark-red clay in the lower part. A few patches are severely eroded. In many places the plow layer contains a little of the browner or redder, finer textured material from the subsoil. In places there are a few chert fragments on the surface and throughout the plow layer.

This soil is strongly acid. It has a high available water capacity. Tilth is good, and the soil is easy to work. The root zone is thick. All kinds of crops and pasture plants commonly grown are suited. Yields are good. (Capability unit IIIe–1; woodland group 2; wildlife group 2)

262–590—68——3

Pickwick silt loam, 5 to 12 percent slopes, severely eroded (PcC3).—The surface layer of this soil is brown silt loam 4 to 6 inches thick. The subsoil grades from reddish-brown silty clay loam in the upper part to red and dark-red clay in the lower part. Much of the loess in which this soil formed has been removed through erosion or has been thoroughly mixed with the underlying material. Rills and shallow gullies are common, and there are a few deep gullies. In most places a few chert fragments are scattered on the surface.

This soil is strongly acid. It has a high available water capacity. It is fairly well suited to most crops and pasture plants commonly grown. (Capability unit IVe–1; woodland group 2; wildlife group 2)

Rockland

Rockland (Rl) consists of areas where rock outcrops cover 50 to more than 90 percent of the surface. The rocks generally protrude well above the surface and are separated by narrow strips of shallow, fine-textured soil. The rocks are predominantly limestone, but a few are shale. The slope range is 5 to about 45 percent.

This land type adjoins Mimosa and Ashwood soils. Most of it is on uplands of the Outer Central Basin.

Most areas are in redcedar and hardwoods. Outcrops of rock are sufficiently numerous to make the use of all types of farm machinery impractical. Yields of marketable cedar are potentially fair to good. These areas are a source of agricultural and industrial limestone. (Capability unit VIIs–1; woodland group 8; wildlife group 4)

Roellen Series

The Roellen series consists of black, poorly drained soils on first bottoms, in depressions, and along small drainageways. These soils formed in slightly acid to neutral alluvium, about 3 to 10 feet thick, that washed from soils derived chiefly from phosphatic limestone. Most of the areas are subject to flooding and, in many places, to long periods of ponding. During prolonged dry spells these soils become very dry and hard, and large cracks form. The slope range is 0 to 1 percent.

Roellen soils typically have a surface layer of black or very dark gray silty clay loam and a subsoil of dark-gray or gray clay.

These soils are medium to high in phosphorus and slightly acid to mildly alkaline. Most of the acreage has been cleared and is used for crops and pasture.

Representative profile of Roellen silty clay loam, about 2 miles east of Bethel:

Ap—0 to 5 inches, very dark gray (10YR 3/1) silty clay loam; moderate, fine, granular structure; friable; many fine roots; few, small, black and dark-brown concretions; neutral; clear, smooth boundary.

A12—5 to 12 inches, very dark gray (N 3/0) silty clay with common, fine and medium, distinct mottles of olive brown; moderate, fine and medium, granular structure; firm; few fine roots; common, small and medium, black and dark-brown concretions; neutral; gradual, wavy boundary.

B21g—12 to 30 inches, dark-gray (N 4/0) clay with common, medium, distinct mottles of very dark gray, gray, olive brown, and light gray; massive; firm; many, medium, black, dark-brown, and strong-brown concretions; neutral; gradual, wavy boundary.

B22g—30 to 48 inches, gray (N 6/0) clay; massive; firm, sticky and plastic; many, medium and large, dark-brown, yellowish-brown, and olive-brown concretions; mildly alkaline.

The A horizon ranges from about 10 to 20 inches in thickness. In places it is very dark grayish brown (10YR 3/2) or black (10YR 2/1). The clay content of the layer between 10 and 40 inches ranges from about 40 to 60 percent.

Roellen silty clay loam (0 to 1 percent slopes) (Ro).—The surface layer of this soil is black or very dark gray silty clay loam 6 to 10 inches thick. The upper part of the subsoil is generally very dark gray silty clay loam, and the lower part is mottled dark-gray, gray, olive, and brown clay. In places the surface is covered by 4 to 8 inches of recent dark-brown silt loam overwash.

This soil is medium to high in phosphorus. The surface layer is slightly acid to neutral. Runoff and permeability are slow to very slow, and the soil is waterlogged during most of the winter by a high water table and by seepage from higher lying soils. Undrained areas of this soil are suited to permanent pasture. Artificially drained areas produce fair to good yields of corn, sorghum, soybeans, and other summer annuals. (Capability unit IIIw–2; woodland group 6; wildlife group 9)

Settling Basins

Settling basins (Se) are pondlike basins used for washing mined rock phosphate. Water for washing clayey material from mined phosphate is pumped into the basins, the fine soil particles are allowed to settle out, and the water is then pumped out for reuse. The basins cover as much as 50 acres and are 10 to 40 feet deep.

All of these basins are north of Pulaski, along Pigeon Roost Creek. Most have filled with clay and other fine washings and have been abandoned. The washed clay is very high in phosphorus and very strongly acid. Most of the abandoned basins are now covered by willows and other swamp-tolerant vegetation. Without reclamation, these basins have little agricultural use. They could be reclaimed for crops and pasture, but they would be difficult to work and would require special fertilization. Also, their drainage characteristics vary. (Not assigned to a capability unit; woodland group 8; wildlife group 10)

Staser Series

The Staser series consists of deep, well-drained, naturally fertile soils on first bottoms, along small drainageways, and in depressions. These soils formed in recent alluvium, about 3 to 10 feet thick, that washed from soils derived from loess, cherty limestone, and phosphatic limestone. The slope range is 0 to 2 percent.

Staser soils typically have a surface layer of dark-brown silt loam and a subsoil of brown, yellowish-brown, or dark yellowish-brown silt loam.

These soils are medium to high in phosphorus and are medium acid to neutral. They have a medium to very high available water capacity. They are well suited to the kinds of crops and pasture plants commonly grown. Yields are high. Most of the acreage has been cleared and is used for crops and pasture.

Representative profile of Staser silt loam, about 5 miles west of Pulaski, one-fourth of a mile north of U.S. Highway 64, along Richland Creek:

Ap—0 to 10 inches, dark-brown (10YR 3/3) silt loam; moderate, fine, granular structure; very friable; many fine roots; slightly acid; clear, smooth boundary.

A12—10 to 26 inches, dark-brown (10YR 3/3) silt loam; moderate, fine, granular structure; very friable; common fine roots; slightly acid; gradual, wavy boundary.

B—26 to 44 inches, dark yellowish-brown (10YR 3/4) silt loam with few, fine and medium, distinct mottles of brown and yellowish brown; moderate, fine, granular structure; friable; few fine roots; few, small, soft, black concretions; slightly acid; gradual, wavy boundary.

A1b—44 to 50 inches, dark-brown (10YR 3/3) silt loam with few, fine, distinct mottles of yellowish brown; moderate, fine and medium, granular structure; friable; few fine roots; few, small, soft, black concretions; slightly acid; gradual, wavy boundary.

C—50 to 70 inches +, dark grayish-brown (10YR 4/2) silt loam with few, fine and medium, distinct mottles of dark yellowish brown, grayish brown, and brown; weak, fine and medium, granular structure; friable; common, small and medium, soft, black concretions; neutral.

The A horizon ranges from 18 to 30 inches in thickness. In places it is very dark grayish brown (10YR 3/2). The clay content of the layer between 10 and 40 inches ranges from 18 to 25 percent. The content of sand and coarse fragments in the same layer ranges from about 15 to 40 percent.

Staser cherty silt loam (0 to 2 percent slopes) (Sr).—The uppermost 20 to 24 inches of this soil is dark-brown cherty silt loam. Below this is generally yellowish-brown cherty silt loam or cherty silty clay loam. Chert fragments, ½ inch to 6 inches across, make up 15 to 40 percent of the soil. In places the lower part of the subsoil is mottled with gray, generally at a depth of more than 24 inches.

This soil is naturally fertile. In most areas it is medium to high in phosphorus and is medium acid to neutral. In a few areas along the valleys extending into the Highland Rim, it is low in phosphorus and is strongly acid. It has a medium to high available water capacity. Cultivated crops can be grown year after year, but surface chert causes some difficulty in tillage. Yields of most crops and pasture plants commonly grown are high. (Capability unit IIs–1; woodland group 1; wildlife group 1)

Staser silt loam (0 to 2 percent slopes) (Ss).—The uppermost 20 to 30 inches of this soil is dark-brown, friable silt loam. Below is brown to yellowish-brown silt loam or silty clay loam. In a few places along the Elk River the alluvium contains fine sand, and the soil is a loam. In a few places there are layers of gravel, generally below a depth of 24 inches.

This soil is medium to high in phosphorus and is medium acid to neutral. It has a very high available water capacity. It is easy to work, and its root zone is thick. This is one of the most productive soils in the county, and it can be used intensively for the commonly grown crops and pasture plants. The only hazards are occasional flooding in areas on first bottoms and brief periods of ponding in areas in depressions. (Capability unit I–1; woodland group 1; wildlife group 1)

Stiversville Series

The Stiversville series consists of deep, well-drained soils, mainly on broad hilltops and on benches at the foot

of steep hillsides in the outer part of the Central Basin. These soils formed in a foot or two of loess over valley fill or residuum derived from phosphatic limestone. The slope range is 5 to 12 percent.

Stiversville soils typically have a surface layer of brown or reddish-brown silt loam and a subsoil of brown or reddish-brown silty clay loam.

These soils are medium to high in phosphorus and are strongly acid. Crops respond well to management, and yields of all commonly grown crops are good.

Representative profile of Stiversville silt loam, 5 to 12 percent slopes, severely eroded, about one-fourth of a mile north of the intersection of Interstate Highway 65 and State Highway 7:

Ap—0 to 5 inches, brown (7.5YR 4/4) silt loam; weak, fine, granular structure; very friable; many fine roots; strongly acid; clear, smooth boundary.

B1—5 to 9 inches, brown (7.5YR 4/4) silt loam with common, fine, faint mottles of strong brown; moderate, fine and medium, granular structure; friable; common fine roots; strongly acid; clear, smooth boundary.

B21t—9 to 21 inches, brown (7.5YR 4/4) silty clay loam; weak, medium, subangular blocky structure; friable; patchy, thin clay films; common fine roots; few rock fragments ¼ inch to 1 inch in size; few, small, rounded, black concretions; very strongly acid; gradual, smooth boundary.

B22t—21 to 29 inches, brown (7.5YR 4/4) silty clay loam; moderate, medium, subangular blocky structure; friable; patchy, thick clay films; common fine roots; few rock fragments ¼ inch to 1 inch in size; common, small, rounded, black concretions; very strongly acid; gradual, smooth boundary.

B23t—29 to 36 inches, brown (7.5YR 4/4) to reddish-brown (5YR 4/4) clay loam; moderate, medium, subangular blocky structure and weak, fine, angular blocky; friable; continuous, thick clay films; few fine roots; common rock fragments ¼ inch to 2 inches in size; common, small, rounded, black concretions; very strongly acid; gradual, wavy boundary.

B24t—36 to 40 inches; brown (7.5YR 4/4) clay loam; weak, fine and medium, angular blocky structure; friable; continuous clay films; common rock fragments ¼ inch to 3 inches in size; common, small, black concretions; very strongly acid; gradual, wavy boundary.

B3t—40 to 47 inches, brown (7.5YR 4/4) clay loam with common, fine and medium, distinct mottles of yellowish brown and strong brown; weak, fine and medium, angular blocky structure; friable; patchy, thin clay films; many rock fragments ¼ inch to 3 inches in size; few, small, black concretions; very strongly acid; gradual, wavy boundary.

C—47 to 59 inches, mottled brown (7.5YR 4/4), yellowish-brown (10YR 5/4 and 10YR 5/6), and brown (10YR 5/3) clay loam interspersed with rock fragments; friable; few, small, black concretions; very strongly acid.

R—59 inches +, sandy limestone interbedded with shale.

In places the A horizon varies from brown to dark grayish brown, reddish brown, or strong brown in hues of 7.5YR and 10YR. In places the B horizon is strong brown (7.5YR 5/6). The clay content of the uppermost 20 inches of the B horizon ranges from 25 to 35 percent, but is ordinarily about 30 percent. The sand content of the same layers in the B horizon is ordinarily about 12 percent, but the content of sand and coarse fragments increases as depth increases.

Stiversville silt loam, 5 to 12 percent slopes, severely eroded (StC3).—This soil is on hilltops, toe slopes, fans, and stream terraces. The surface layer is brown or reddish-brown silt loam 6 inches thick. The subsoil is brown or reddish-brown silty clay loam.

This soil is medium to high in phosphorus and is strongly acid. In most places the subsoil is exposed, but it is soft and friable and not difficult to work. Crops respond well to management. The slope is the main limitation. (Capability unit IVe–1; woodland group 2; wildlife group 2)

Taft Series

The Taft series consists of somewhat poorly drained soils on upland flats on the Highland Rim. These soils developed mainly in loess over residuum from cherty limestone. In most places a fragipan begins at a depth of about 2 feet. The slope range is 0 to 2 percent.

Taft soils typically have a surface layer of dark grayish-brown silt loam and a subsoil of mottled olive-brown silt loam or silty clay loam.

These soils are low in natural fertility and are strongly acid or very strongly acid. Permeability is very slow in the fragipan, and the soils are saturated much of winter and spring. About 75 percent of the acreage has been cleared and is used for pasture. Without drainage, the soils are only poorly suited to cultivated crops.

Representative profile of Taft silt loam, one-fourth of a mile east of Union Hill Church, near the headwaters of Piney Creek:

Ap—0 to 6 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; many fine roots; common, small, distinct, strong-brown stains along root channels; very strongly acid; clear, smooth boundary.

A3—6 to 10 inches, light olive-brown (2.5Y 5/4) silt loam; weak, fine, granular structure; very friable; common fine roots; few, small, weathered chert fragments; few, small, brown and black concretions; very strongly acid; clear, wavy boundary.

B1—10 to 16 inches, olive-brown (2.5Y 4/4) heavy silt loam with common, fine and medium, distinct mottles of yellowish brown, strong brown, and gray; weak, fine and medium, subangular blocky structure; friable; few fine roots; few small weathered chert fragments; common, small, brown and strong-brown concretions; very strongly acid.

B2—16 to 24 inches, light olive-brown (2.5Y 5/4) light silty clay loam with many, medium and coarse, distinct mottles of gray and yellowish brown; weak, medium, subangular blocky structure; friable; few fine roots; few small weathered chert fragments; common, medium, strong-brown concretions and few, small, dark reddish-brown concretions; very strongly acid; clear, wavy boundary.

A'2&B'x—24 to 34 inches, mottled gray (N 6/0), yellowish-brown (10YR 5/6), and light olive-brown (2.5Y 5/4) silty clay loam; weak, medium, angular blocky structure; firm and slightly brittle; few small chert fragments; common, medium and large, black concretions; very strongly acid; gradual, wavy boundary.

B'x—34 to 48 inches, mottled strong-brown (7.5YR 5/6), yellowish-brown (10YR 5/6), gray (N 6/0), olive-gray (5Y 5/2), and olive-brown (2.5Y 4/4) silty clay loam; weak, medium, angular blocky structure; firm and brittle; common clay films; few weathered chert fragments; few, medium, black concretions; very strongly acid; gradual, wavy boundary.

Cg—48 to 60 inches, gray (N 5/0) cherty silty clay loam with common, medium and coarse, distinct mottles of strong brown, yellowish red, and olive brown; massive; firm; very strongly acid.

The depth to the upper boundary of the fragipan ranges from 18 to 30 inches.

Taft silt loam (0 to 2 percent slopes) (Ta).—The surface layer of this soil is dark grayish-brown silt loam 6 to 10

inches thick. The subsoil is dominantly light olive-brown silt loam or silty clay loam mottled with gray and yellow. In most places a fragipan begins at a depth of about 2 feet. In many places the surface is covered by an overwash of 2 to 6 inches of brown silt loam.

This soil is low in natural fertility and is strongly acid or very strongly acid. It is saturated much of winter and spring, but it dries out quickly in prolonged dry spells. Its use and suitability is limited by wetness and the very slow permeability of the fragipan. Without drainage, it is suited to pasture plants and to crops that can be planted late in spring, such as soybeans. Artificial drainage improves its suitability for crops, but in many places there are no drainage outlets. (Capability unit IIIw–3; woodland group 7; wildlife group 8)

Talbott Series

The Talbott series consists of well-drained soils on uplands adjacent to flood plains along Richland Creek. These soils formed in residuum weathered from limestone. The depth to limestone bedrock is generally about 2 to 6 feet, but bedrock crops out in many places. The slope range is 2 to 20 percent.

Talbott soils typically have a surface layer of brown or dark yellowish-brown silt loam and a subsoil of yellowish-red silty clay to clay.

These soils are low in natural fertility and are strongly acid. They have low to medium available water capacity. They are only fairly well suited or poorly suited to row crops and grain crops. Nearly all of the acreage has been cleared. Most of it is in pasture or is idle; only a few areas are used for crops. Yields of pasture and some kinds of hay are medium.

Representative profile of Talbott silt loam, 2 to 5 percent slopes, eroded, about one-fourth of a mile west of Abernathy Airport:

Ap—0 to 4 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, fine and medium, granular structure; friable; many fine roots; common chert fragments ¼ to ½ inch in size; medium acid; abrupt, smooth boundary.

B21t—4 to 8 inches, yellowish-red (5YR 5/6) silty clay; moderate, medium, angular blocky structure; firm; continuous clay films; common fine roots; few, small, black concretions; medium acid; clear, smooth boundary.

B22t—8 to 18 inches, yellowish-red (5YR 5/6) clay; moderate, medium, angular blocky structure; very firm, sticky and plastic; continuous clay films; few fine roots; few, small, weathered chert fragments; few, small and medium, black concretions; strongly acid; clear, smooth boundary.

B23t—18 to 30 inches, strong-brown (7.5YR 5/6) clay with common, fine and medium, distinct mottles of yellowish red, red, and yellowish brown; strong, medium, angular blocky structure; very firm, sticky and plastic; continuous clay films; few fine roots; few, small, black concretions; very strongly acid; clear, smooth boundary.

B24t—30 to 38 inches, strong-brown (7.5YR 5/6) clay with many, fine and medium, distinct mottles of yellowish red, yellowish brown, pale brown, and light brownish gray; strong, medium and coarse, angular blocky structure; very firm, sticky and plastic; continuous clay films; few, small, dark-brown and black concretions; very strongly acid; clear, smooth boundary.

B3t—38 to 44 inches, mottled yellowish-brown (10YR 5/6), olive-brown (2.5Y 4/4), and light brownish-gray (2.5Y 6/2) clay; moderate, coarse, angular blocky structure; very firm, sticky and plastic; few slabs of weathered limestone about 2 by 6 inches in size; common, small and medium, dark-brown and black concretions; slightly acid.

R—44 inches +, limestone bedrock.

In places the A horizon is brown (10YR 4/3 or 10YR 5/3). The B horizon ranges to red (2.5YR 4/6). The clay content of the B horizon ranges from 50 to 70 percent.

Talbott silt loam, 2 to 5 percent slopes, eroded (TbB2).—The surface layer of this soil is dark yellowish-brown to brown silt loam 4 to 7 inches thick. The subsoil is yellowish-red, firm, sticky and plastic clay. In many places a few chert fragments or pebbles occur on the surface, and in places there are a few outcrops of rock.

This soil is low in natural fertility and is strongly acid. It has medium available water capacity. The clayey subsoil absorbs and releases water slowly, which causes runoff to begin soon after heavy rainfall begins and makes the soil highly susceptible to erosion. Yields of most kinds of crops and pasture plants commonly grown are, at best, about medium. Drought usually reduces yields of summer annuals. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Talbott silt loam, 5 to 12 percent slopes, eroded (TbC2).—The surface layer of this soil is yellowish-brown or brown silt loam. The plow layer is 4 to 6 inches thick. In places it contains yellowish-red, plastic clay from the subsoil. The lower part of the subsoil is firm, plastic clay streaked with shades of red, yellow, and brown. In a few places the surface is covered with 8 to 10 inches of alluvium that contains a few chert fragments or pebbles. In many places there are a few rock outcrops.

This soil is low in natural fertility and is strongly acid. It has a low available water capacity. The heavy, plastic clay of the subsoil restricts the penetration of plant roots and the movement of air and water. The slow permeability causes runoff to begin soon after rainfall begins. This soil is suited to most kinds of crops commonly grown, but of these, pasture and close-growing crops are best suited. The erosion hazard is severe if cultivated crops are grown. Drought usually reduces yields. (Capability unit IVe–4; woodland group 4; wildlife group 3)

Talbott silty clay, 3 to 12 percent slopes, severely eroded (TcC3).—The plow layer of this soil is silty clay, 4 to 6 inches thick. It consists largely of yellowish-red, firm, plastic clay from the subsoil. Shallow gullies are common, and there are a few deep gullies. In places small chert fragments or pebbles are scattered on the surface. In many places there are a few outcrops of limestone.

This soil is low in natural fertility and is strongly acid. It has a low available water capacity. Water enters and moves through the subsoil very slowly, which causes rapid runoff and a severe erosion hazard. Tilth is poor. Cultivated crops are poorly suited, but most kinds of pasture plants can be grown if lime and fertilizer are added and the soils are protected from overgrazing. (Capability unit VIe–2; woodland group 4; wildlife group 3)

Talbott very rocky complex, 2 to 20 percent slopes (TrD).—This complex consists of very rocky areas in which outcrops of limestone cover 10 to 40 percent of the surface. The soil material between the outcrops is variable. It is dominantly yellowish-red clay and ranges in thickness from a few inches to several feet. In areas that are not severely eroded, the surface layer is brown silt loam or

silty clay loam 3 to 5 inches thick, and the subsoil is yellowish-red, firm, plastic clay.

These soils are low in natural fertility and are strongly acid. They have a low available water capacity. Most areas are fairly well suited to permanent pasture, but the more rocky areas, where the soils are shallower, are better suited to trees. About 75 percent of the acreage is wooded. The trees are mainly redcedar, oak, hickory, and elm. Most of the cleared areas are used for pasture. In most places the rock outcrops are sufficiently numerous to make tillage with farm machinery impractical. (Capability unit VIs–2; woodland group 8; wildlife group 4)

Tupelo Series

The Tupelo series consists of somewhat poorly drained soils on low, level or nearly level stream terraces. These soils developed in old alluvium washed from soils derived mainly from phosphatic limestone. The slope range is 0 to 2 percent.

Tupelo soils typically have a surface layer of dark grayish-brown silt loam. The upper part of the subsoil is mottled olive-brown and grayish-brown clay over grayish clay.

These soils are medium to high in phosphorus and are medium acid to strongly acid. Their use is limited by wetness and slow permeability in the subsoil. Most of the acreage has been cleared and is used for crops and pasture.

Representative profile of Tupelo silt loam, about 3 miles south of Pulaski, and half a mile east of railroad at Crescent View:

Ap—0 to 9 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; very friable; many fine roots; few, small, black concretions; strongly acid; clear, smooth boundary.

B1t—9 to 15 inches, olive-brown (2.5Y 4/4) silty clay with common, medium, distinct mottles of dark grayish brown and light olive brown; moderate, medium, subangular and angular blocky structure; firm; continuous clay films; few fine roots; common, small and medium, black and yellowish-brown concretions; strongly acid; gradual, wavy boundary.

B21tg—15 to 23 inches, grayish-brown (2.5Y 5/2) clay with common, fine and medium, faint mottles of light olive brown and olive; moderate, medium, angular blocky structure; firm; continuous clay films; many, small and medium, yellowish-brown and black concretions; strongly acid; gradual, wavy boundary.

B22tg—23 to 34 inches, light brownish-gray (2.5Y 6/2) clay; weak, medium and coarse, angular blocky structure to massive; very firm; continuous clay films; many, small and medium, black and yellowish-brown concretions; strongly acid; gradual, wavy boundary.

Cg—34 to 50 inches, gray (10YR 6/1) clay; massive; very firm, sticky and plastic; many strong-brown and yellowish-brown concretions; medium acid.

In places the B1t horizon is yellowish brown (10YR 5/4).

Tupelo silt loam (0 to 2 percent slopes) (Tu).—The surface layer of this soil consists of 6 to 12 inches of dark grayish-brown silt loam. The upper part of the subsoil is olive-brown or yellowish-brown silty clay mottled with gray. The lower part of the subsoil is dominantly gray clay, and in most places it contains many brown concretions.

This soil is medium to high in phosphorus and is medium acid to strongly acid. It is waterlogged for long periods in winter and spring, but it dries out in summer and fall. Runoff and permeability are slow to very slow, and in places ponding is common. Such water-tolerant plants as tall fescue and white clover grow well, as do soybeans and other crops that can be planted late in the season. (Capability unit IIIw–3; woodland group 7; wildlife group 8)

Woolper Series

The Woolper series consists of nearly black, moderately fine textured, well drained or moderately well drained soils on toe slopes and fans and along small drainageways. These soils formed in 2 to about 6 feet of old alluvium that washed from soils derived from phosphatic limestone. The slope range is 0 to 3 percent.

Woolper soils typically have a thick surface layer of black, very dark brown, or very dark grayish-brown silty clay loam. The subsoil is dark-colored silty clay to clay.

These soils are medium to high in phosphorus and are generally medium acid or slightly acid. Nearly all of the acreage has been cleared and is used for crops and pasture. Most kinds of commonly grown crops and pasture plants are suited. Yields are medium.

Representative profile of Woolper silty clay loam, about 2½ miles north of Frankewing, along Bradshaw Creek:

Ap—0 to 8 inches, very dark grayish-brown (10YR 3/2) silty clay loam; moderate, fine and medium, granular structure; friable; many firm roots; few small fragments of chert or highly weathered limestone ¼ to ½ inch in size; few, small and medium, rounded, black concretions; medium acid; clear, wavy boundary.

B1t—8 to 15 inches, very dark grayish-brown (10YR 3/2) silty clay; moderate, fine and medium, subangular and angular blocky structure; firm; patchy, thin clay films; common fine roots; few fragments of chert or highly weathered limestone ¼ to ½ inch in size; few, small and medium, rounded, black concretions; slightly acid; clear, wavy boundary.

B21t—15 to 20 inches, dark-brown (10YR 3/3) silty clay; moderate, medium, angular blocky structure; firm; continuous, thin clay films; common fine roots; few chert fragments ¼ to ½ inch in size; few, small and medium, rounded, black concretions; slightly acid; gradual, wavy boundary.

B22t—20 to 35 inches, dark-brown (10YR 4/3) clay with common, fine and medium, distinct mottles of dark grayish brown; moderate, medium, angular blocky structure; firm; continuous, thin clay films; few, small, rounded, black and dark-brown concretions; slightly acid; clear, wavy boundary.

B23t—35 to 43 inches, dark grayish-brown (10YR 4/2) clay with common, fine and medium, distinct mottles of olive gray; weak, medium and coarse, angular blocky structure; firm to very firm; continuous, thin clay films; common, small and medium, rounded, black and dark-brown concretions; slightly acid; clear, wavy boundary.

B3—43 to 50 inches +, dark yellowish-brown (10YR 4/4) clay with many, fine and medium, distinct mottles of olive gray and dark grayish brown; massive; very firm; few weathered chert fragments ¼ to 1 inch in size; common, small and medium, black and dark-brown concretions; medium acid.

In places the A horizon is dark brown (10YR 3/3).

Woolper silty clay loam (0 to 3 percent slopes) (Wo).—The surface layer of this soil is very dark brown or black silty clay loam. It overlies dark-brown or very dark grayish-brown clay. In places the surface is covered with recent sediments consisting of 3 to 6 inches of brown to dark-brown silt loam. In some places mottles do not occur in any

part of the profile, but in others mottles of olive and gray occur at a depth below 2 feet.

This soil is medium to high in phosphorus. In most areas it is medium acid or slightly acid, but in a few places it is mildly alkaline. Unless this soil is tilled within a rather narrow range of moisture content, hard clods form and cause poor tilth. Yields of commonly grown crops and pasture plants are medium or high. (Capability unit IIs–1; woodland group 1; wildlife group 2)

Use and Management of the Soils

The soils of this county are used mainly for farming. The largest acreage of farmland is used for corn, hay, small grain, and cotton. Cotton and burley tobacco are the principal cash crops.

This section describes the use and management of the soils for crops and pasture, woodland, wildlife, and engineering. It discusses the system of capability classification used by the Soil Conservation Service and management by capability units, and it gives estimated yields of principal crops under good management. Then it describes the use and management of the soils for woodland and as habitats for wildlife, and it discusses characteristics of the soils that are significant in road construction and other engineering uses.

Capability Groups of Soils

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soil; and without consideration of possible but unlikely major reclamation projects.

In the capability system, all the soils are grouped at three levels: the capability class, the subclass, and the unit. These are discussed in the following paragraphs.

Capability Classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use, defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants, require special conservation practices, or both.

Class IV soils have very severe limitations that restrict the choice of plants, require very careful management, or both.

Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that limit their use largely to pasture, range, woodland, or wildlife food and cover. (None in this county)

Class VI soils have severe limitations that make them generally unsuited to cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.

Class VII soils have very severe limitations that make them unsuited to cultivation and that restrict their use largely to grazing, woodland, or wildlife.

Class VIII soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife, or water supply, or to esthetic purposes. (None in this county)

Capability Subclasses are groups within one class; they are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few limitations. Class V can contain, at the most, only subclasses indicated by *w*, *s*, and *c*, because the soils in it are subject to little or no erosion, though they have other limitations that restrict their use largely to pasture, range, woodland, wildlife, or recreation.

Capability Units are groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, IIe–1 or IIIe–2. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation, and the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraph. The Arabic numeral specifically identifies the capability unit.

Management by capability units

In the following pages the capability units in Giles County are described and suggestions for use and management of the soils are given. Specific statements are not made concerning the use of fertilizer, desirable varieties and mixtures of seeds, or favorable dates for planting. Up-to-date information is published from time to time by the Tennessee Agricultural Experiment Station and the Extension Service. Personnel of the local office of the Soil Conservation Service and the Extension Service can furnish information helpful in interpreting this information.

The capability classification of each soil is given in the "Guide to Mapping Units" at the back of this report.

CAPABILITY UNIT I–1

This unit consists of deep, well-drained, nearly level soils on first bottoms, on low stream terraces, and in depressions. Some of the areas are subject to occasional flooding and sedimentation.

These soils are high to very high in available water capacity and are readily permeable to air, water, and roots. They are easy to work and are not difficult to keep in good tilth.

These soils are fertile and are well suited to many kinds of crops. Row crops can be grown year after year, but

growing tobacco and alfalfa is risky in most places because of the hazard of flooding and sedimentation. Crops respond well to good management. Pastures have a high carrying capacity for 7 or 8 months of the year. Supplemental pastures of sudangrass, pearl millet, or sudangrass-sorghum hybrids are highly productive.

Special tillage and cropping practices are not needed to maintain good tilth or to control erosion. Diversions are needed in some places to intercept runoff from adjacent uplands. The deepening of stream channels to control flooding is the conservation practice most needed.

CAPABILITY UNIT I–2

This unit consists of deep, moderately well drained soils on first bottoms, along small drainageways, and in depressions. Most of the areas are subject to flooding or ponding for short periods. The water table is usually high in winter and spring, and the lower part of the subsoil is saturated.

These soils are high to very high in available water capacity. They are easy to work and can be kept in good tilth if not tilled or grazed when wet.

The soils in this unit are highly productive and are suited to most of the commonly grown crops and pasture plants. Corn, sorghum, soybeans, and other row crops can be grown year after year. Supplemental pastures of sudangrass, pearl millet, or sudangrass-sorghum hybrids are highly productive. Alfalfa and tobacco can be grown in the areas that are drained and protected against flooding.

Damage caused by flooding and sedimentation can be limited in many places by improving drainage. Erosion is not a problem.

CAPABILITY UNIT IIe–1

This unit consists of deep, well-drained, gently sloping soils that have a surface layer of silt loam and a subsoil of friable silty clay loam or clay loam. These soils are medium or high in available water capacity. They have a deep root zone that is permeable to air, water, and roots. They are easy to work and are not difficult to keep in good tilth.

These soils are among the most productive in the county. They are well suited to all kinds of crops and pasture plants commonly grown. Crops respond well to management. Alfalfa grows particularly well, and well–fertilized pastures have a high carrying capacity for 7 or 8 months of the year. A deficiency of zinc has been detected in some of the crops grown on the highly phosphatic soils, especially where enough lime has been applied to raise the pH to neutral or higher.

These soils are susceptible to erosion unless they are well managed. The slope is the most serious limitation. Contour cultivation (fig. 13) is effective in controlling erosion. Terracing and contour stripcropping limit erosion on long slopes. Diversions can be established in many places to carry runoff to safe outlets. Perennial vegetation should be established in natural draws to provide sodded waterways.

An example of a suitable cropping system is a row crop, such as corn, followed by small grain, then 2 or more years of pasture or hay. Winter cover crops and green-manure crops of vetch, crimson clover, ryegrass, or small grains are needed to help control erosion and to maintain organic-matter content, especially if row crops are grown 2 years in succession.

Figure 13.—**Contour cultivation of cotton on Pickwick silt loam, 2 to 5 percent slopes. This soil can produce high yields of row crops, but conservation practices are needed to control erosion and to conserve water.**

CAPABILITY UNIT IIe–2

This unit consists of moderately well drained soils that have a fragipan or a subsoil of heavy clay at a depth of about 2 feet. Water moves through the compact layer slowly, and the soils are waterlogged during rainy periods. The slope range is 2 to 5 percent.

These soils are easy to work and are not difficult to keep in good tilth if not worked when wet. Their suitability is somewhat limited by the fragipan or the clayey subsoil and the mild slope. Crops respond well to management, but the soils dry out quickly and yields of most summer annuals are reduced if dry spells are prolonged. Yields of small grains, which grow and mature in the seasons when rainfall is plentiful, generally are higher than yields of most summer annuals. Tobacco ordinarily grows well, but in low spots, tobacco plants are likely to drown out during rainy spells. Tall fescue, orchardgrass, bermudagrass, white clover, and annual or sericea lespedeza are well suited.

These soils are suited to short cropping systems in which a row crop is followed by a small grain and then by 2 or more years of pasture or hay. They are not suited to alfalfa, except in short cropping systems of 2 to 5 years, because stands of alfalfa ordinarily thin out after about 2 years.

The most serious limitations are the slope and wetness in the lower part of the subsoil during rainy periods. The slope, combined with slow permeability, causes moderate runoff and an erosion hazard. Contour cultivation, terracing, and contour stripcropping are effective in controlling erosion.

These soils should not be tilled while they are excessively wet. Preparation of seedbeds often must be delayed because the soils dry out slowly in spring. Diversion terraces can be established in many places to intercept runoff. Natural draws should be used as sodded waterways. Grazing should be carefully controlled during wet periods so that pastures will not be damaged by trampling.

CAPABILITY UNIT IIe–3

This unit consists of deep, well-drained, gently sloping soils that have a surface layer of cherty silt loam and a thick subsoil of cherty silty clay loam. The subsoil is permeable to air, water, and roots. The soils are medium to

high in available water capacity. Good tilth is not difficult to maintain, but chert interferes with tillage.

These soils are well suited to all kinds of crops and pasture plants commonly grown in the county. Crops respond well to management. Yields of corn, cotton, sorghum, tobacco, small grains, and alfalfa are good. Hay and pasture crops are good, and supplemental pasture crops of sudangrass and pearl millet or sudangrass-sorghum hybrids are fairly good.

These soils are susceptible to erosion if they are cultivated and not protected. Contour stripcropping on long slopes, contour cultivation, terraces, and diversions are effective in controlling erosion. Perennial vegetation should be established in natural draws to provide sodded waterways.

A cropping system that is effective in controlling erosion is one in which row crops are grown not more than 2 years in every 3 or 4 years. A row crop, then a small grain, then 2 or more years of pasture or hay is an example of a suitable cropping system. Growing winter cover crops and turning under crop residue help to control erosion and to maintain the supply of organic matter.

CAPABILITY UNIT IIw–1

This unit consists of somewhat poorly drained soils on first bottoms. Surface drainage is generally slow, and many of the areas are likely to be flooded or ponded for short periods.

These soils are high in available water capacity. They are fairly easy to work, but they should be tilled within a fairly narrow range of moisture content because hard clods form if they are tilled when too wet.

These soils are naturally fertile, but most crops respond well to applications of nitrogen and potash. The hazards of flooding and ponding and the fairly high water table limit the choice of crops. If drained, most areas can be used for row crops year after year. Small grains grow fairly well but tend to lodge and to be late in maturing. Tall fescue, bermudagrass, white clover, and annual lespedeza are well-suited pasture plants. Supplemental summer pastures of sudangrass, pearl millet, or sudangrass-sorghum hybrids are highly productive. Although alfalfa grows well in some places, it is generally damaged by excess moisture, which provides a favorable environment for diseases and parasites.

Wetness is the most serious limitation. Spring harvesting of small grain usually must be delayed because the soil is too wet for farm machinery to be used. In many places surface and internal drainage can be improved. Ponded areas can be drained by open ditches. The hazard of flooding can be reduced by building levees and by clearing and stabilizing streambanks. Grazing should be carefully controlled so that pastures will not be damaged by trampling.

CAPABILITY UNIT IIw–2

This unit consists of Mercer silt loam, 0 to 2 percent slopes, a moderately well drained soil that has a fragipan at a depth of about 2 feet. The fragipan restricts the movement of air and water and the penetration of plant roots. In winter and spring a perched water table above the fragipan keeps the soil saturated for long periods. In summer the soil dries out.

This soil is easy to work, but special care should be taken not to till it when it is too wet. Wetness often delays spring planting.

Most crops grown on this soil respond well to applications of lime, nitrogen, and potash. Yields of most crops are fair to good. Generally, alfalfa does not grow well because of the shallow root zone and the perched water table. Yields of summer annuals, such as corn, vary greatly from one year to another, depending on the amount of rainfall. Yields of pasture are good. Tall fescue, bermudagrass, white clover, and annual lespedeza are suitable pasture plants.

If enough fertilizer is applied and large amounts of crop residue are returned, row crops can be grown every year, but it is better to alternate row crops with lespedeza hay.

In many places surface drainage can be improved by open ditches. Grazing should be controlled when the soil is wet, so that pastures will not be damaged by trampling.

CAPABILITY UNIT IIs–1

This unit consists of well drained and moderately well drained, cherty soils on first bottoms, in depressions, and along small drainageways. These soils have a surface layer of cherty silt loam or silty clay loam and a subsoil of cherty silt loam or silty clay. They are medium in available water capacity. They have a deep root zone.

Except in areas where flooding and ponding are hazards, these soils are suited to all kinds of crops and pasture plants commonly grown. Corn, sorghum, soybeans, and annual lespedeza are well suited. Alfalfa, small grain, and tobacco can be grown in areas that are adequately drained and not likely to be flooded. Sudangrass, pearl millet, and sudangrass-sorghum hybrids are suitable for supplemental pasture.

If fertilizer is applied and good tilth is maintained, row crops can be grown every year. Each row crop should be followed by a cover crop, to maintain the supply of organic matter.

The most serious limitation is the chert on the surface and in the profile. In some places the water table is intermittently high. Erosion is not a hazard, but most areas receive periodic deposits of silt or cherty sediments. Drainage of the Lynnville and Lobelville soils can be improved by means of open ditches or tile, or by alining rows and cultivating parallel to stream channels. The flood hazard can be reduced by building levees, straightening stream channels, and clearing streambanks. Diversions can be used in many places to intercept runoff or overwash from adjoining uplands.

CAPABILITY UNIT IIIe–1

This unit consists of deep, well-drained soils. These soils have a deep root zone that is permeable to air, water, and roots. They are medium to high in available water capacity. They are fairly easy to work, and good tilth is not difficult to maintain. The slope range is 5 to 12 percent.

These soils are well suited to all kinds of crops and pasture plants commonly grown. They respond well to good management and can be cultivated regularly. Pastures have a high carrying capacity. These are among the best soils in the county for alfalfa, but applications of borax are needed to establish and maintain good stands. A deficiency of minerals has been detected in some crops (espe-

Figure 14.—**Strips of small grain and lespedeza, alternated with strips of cotton and corn on Maury silt loam, 5 to 12 percent slopes, eroded.**

cially a deficiency of zinc in corn) grown on the more highly phosphatic soils. Cover crops, green-manure crops, and crop residue should be turned under to help maintain the organic-matter content and to keep the soils in good tilth.

These soils are subject to erosion if they are cultivated and not protected. An example of a suitable rotation that will help control erosion is a row crop followed by small grain, then pasture for 2 or more years. Another example is a row crop followed by small grain, then alfalfa or some other hay crop for 3 or more years.

Diversions, terraces, contour strips (fig. 14), and contour cultivation are effective in controlling erosion on these soils. Perennial vegetation should be established in natural draws to provide sodded waterways.

CAPABILITY UNIT IIIe–2

This unit consists of deep, well-drained soils that have a surface layer of cherty silt loam and a subsoil of cherty silty clay loam. These soils have a deep root zone that is permeable to air, water, and roots. They are medium in available water capacity. Chert fragments on the surface and within the soil interfere somewhat with tillage, but otherwise tilth is good. The slope range is 5 to 12 percent.

These soils are suited to all kinds of crops and pasture plants commonly grown. Under good management they produce good yields of corn, cotton, tobacco, small grain, and alfalfa. They produce good crops of hay and pasture and fairly good supplemental pasture of sudangrass and pearl millet.

These soils are subject to erosion if they are cultivated and not protected. Erosion can be controlled and best yields obtained by growing row crops only once every 3 to 4 years. An example of a suitable cropping system is a row crop followed by a small grain, then pasture or hay for 3 or more years. Contour stripcropping on long slopes, contour cultivation, terraces, and diversions are effective in controlling erosion. In most places permanent sod can be established in natural drains to provide suitable outlets for diversions and terraces.

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CAPABILITY UNIT IIIe–3

This unit consists of deep to moderately deep soils that have a surface layer of friable cherty silt loam and a cherty and clayey subsoil. These soils are medium in available water capacity. They are underlain by limestone bedrock, and there are a few outcrops of rock in some places. Good tilth is not difficult to maintain if the soils are not worked when they are wet. The slope range is 2 to 12 percent.

These soils are fairly well suited to most kinds of crops commonly grown, but they are better suited to small grains and pasture. Water is held tightly by the clayey subsoil and is not readily available to plants; consequently, most crops, especially summer annuals, grow slowly during dry periods. The available water capacity can be increased and tilth can be improved by adding organic matter, especially in severely eroded areas. Tall fescue, orchardgrass, bermudagrass, white clover, annual lespedeza, and sericea lespedeza are suitable pasture plants. Alfalfa can be grown for hay or in mixtures for permanent pasture.

These soils are highly susceptible to erosion because runoff is rapid. Each row crop should be followed by a cover crop. A suitable cropping system is a row crop followed by a small grain, then 2 or more years of sod or hay.

Diversions can be used in many places to channel excess water to suitable outlets. Terraces, contour stripcropping, and contour cultivation are effective in controlling erosion where row crops are grown. Perennial vegetation should be established in natural draws to provide sodded waterways.

CAPABILITY UNIT IIIw–1

This unit consists of Lee silt loam, a gray, poorly drained soil on first bottoms. This soil is strongly acid and low in natural fertility. Usually, it is flooded several times a year, mainly in winter and spring. The water table is near the surface during those seasons.

Wetness is the most serious limitation. Without drainage, this soil is suited only to crops that can be planted late, such as soybeans, and to water-tolerant crops, such as tall fescue. If it is drained and protected from flooding, row crops can be grown every year. Yields of corn and cotton are good. The soil is permeable, and drainage systems operate successfully where there are suitable outlets. Erosion is not a hazard.

CAPABILITY UNIT IIIw–2

This unit consists of Roellen silty clay loam, a nearly black, poorly drained soil on bottom lands. This soil has a silty plow layer, but the subsoil is plastic clay, through which water moves slowly. Most of the areas are subject to flooding or ponding, and they stay wet until late in spring.

Without artificial drainage, the suitability of this soil for crops and pasture is limited. Tillage is usually delayed in spring, and harvesting in fall is difficult. It is important that this soil be tilled only within a narrow range of moisture content to prevent the formation of hard clods.

Corn, sorghum, soybeans, and other row crops can be grown every year in drained areas. Grain sorghum is well suited. A mixture of timothy and annual lespedeza is suitable for hay. The soil remains moist through dry spells in the growing season and is valuable for summer pasture. Fescue, bermudagrass, white clover, and annual lespedeza

are well suited to permanent pasture. Sudangrass and millet are suitable for supplemental grazing in summer. Alfalfa is poorly suited.

Drainage can be improved and flood damage can be reduced in many places by means of open ditches or tile, and by cultivating in narrow bands that parallel streams. Flood damage can be reduced in many places by building levees and sodding streambanks.

CAPABILITY UNIT IIIw–3

This unit consists of level, somewhat poorly drained soils on stream terraces and upland flats. These soils have a surface layer of friable silt loam and a slowly permeable subsoil of silty clay loam to clay. They are fairly easy to work, but wetness often delays tillage in spring. Runoff is slow.

These soils are saturated in winter and spring. They dry out in summer and fall, and most crops and pasture plants are damaged by drought.

Wetness and slow permeability limit the choice of crops. Without drainage, crop failures are common, but if the soils are drained, they produce fair to good yields of corn, sorghum, soybeans, small grain, and lespedeza. Row crops can be grown every year. Tall fescue, bermudagrass, white clover, and annual lespedeza are suitable pasture plants.

Drainage can be improved in most places, but tile drainage does not function well, because permeability is slow in the subsoil. Grazing should be carefully controlled to prevent damage from overgrazing and trampling. Erosion is not a hazard.

CAPABILITY UNIT IVe–1

This unit consists of deep, well-drained soils. These soils have a fairly deep root zone that is readily permeable to air, water, and roots. They are medium in available water capacity. They are somewhat difficult to work because in most areas they are severely eroded and they have a slightly clayey plow layer that crusts and clods. The available water capacity can be increased and tilth can be improved by returning crop residue. The slope range is 5 to 20 percent.

These soils are suited to all kinds of crops and pasture plants commonly grown, but more seed and more fertilizer than normal are needed. If enough fertilizer is used, pasture yields are high. Crops respond well to management. Alfalfa grows especially well.

These soils are susceptible to erosion if they are cultivated and not protected. Row crops can be grown in cropping systems lasting 4 to 6 years. An example of a suitable cropping system is a row crop, a small grain, then pasture or hay for 3 or more years. Or, the cropping system can consist of a small grain and pasture or legume-and-grass hay. Any of the commonly grown row crops, small grains, and pasture plants can be used.

Contour stripcropping, contour cultivation, and terracing are effective in reducing runoff and controlling erosion. Diversions can be used in many places to channel runoff to safe outlets. Natural draws should be sodded to provide drainage outlets for diversions and terraces.

CAPABILITY UNIT IVe–2

This unit consists of deep, well-drained, cherty soils that have a friable subsoil. These soils have a fairly deep root zone that is readily permeable to air, water, and roots. They are medium in available water capacity. They are somewhat difficult to work because of their slope and the chert fragments. The available water capacity can be increased and tilth can be improved by turning under crop residue. The slope range is 5 to 20 percent.

These soils are fairly well suited to the kinds of crops and pasture plants commonly grown, but large amounts of seed and fertilizer are needed to insure good stands. Crops respond well to management, but lack of moisture usually causes yields of most summer annuals to be only medium.

There is an erosion hazard and a probability of summer drought. The effects of summer drought are usually more severe on the eroded soils in this unit. The slopes cause difficulty in use of farm equipment. The soils are better suited to small grain, permanent pasture, or hay than to row crops. Alfalfa can be grown, but it requires a high level of management.

Row crops can be grown in cropping systems lasting 4 to 6 years. An example of a suitable cropping system is a row crop, then a small grain, then 3 or more years of hay or pasture.

Contour cultivation, contour stripcropping, and diversions are effective in reducing runoff and controlling erosion. Terraces are effective where the slope is less than 12 percent. Most natural draws provide good outlets for diversions and terraces if they are kept sodded. The soil should be protected from overgrazing.

CAPABILITY UNIT IVe–3

This unit consists of deep, well-drained, cherty soils that have a thin surface layer and a subsoil of cherty clay. These soils are medium in available water capacity. They are difficult to work because of chert fragments and their slope. In places tillage is difficult because the plow layer is clayey. The slope range is 5 to 20 percent.

These soils are fairly well suited to poorly suited to row crops. They produce, at best, only medium yields of corn, cotton, and tobacco. They produce high yields of small grain because the grain grows and matures during the time of the year when moisture is plentiful. Yields of alfalfa are medium. Tall fescue, bermudagrass, white clover, and annual lespedeza grow well. Orchardgrass grows well in areas that are not severely eroded. More seed than normal is needed in severely eroded areas to insure good stands. Tilth can be improved and the content of organic matter maintained by turning under crop residue.

Row crops can be grown successfully, but only in a long cropping system. Yields of row crops are not high enough to warrant growing them frequently, but if they are grown, an example of a suitable cropping system is a row crop followed by a small grain, then sod for 3 or more years. Another example is a row crop followed by hay or sod for 4 or more years.

These soils erode readily if they are cultivated and not protected. Erosion can be controlled by stripcropping, contour cultivation, and terracing in areas where the slope is suitable.

CAPABILITY UNIT IVe–4

This unit consists of well-drained, sloping soils on uplands. These soils have a very clayey subsoil that limits the depth of the root zone and slows the movement of air and water. They are moderately low in available water capac-

ity. They are hard to work and to conserve. The slope range is 2 to 12 percent. In places chert occurs on the surface, and in most places there are scattered outcrops of limestone bedrock. There are severely eroded patches where the plow layer is sticky when wet and hard and cloddy when dry.

These soils are only fairly well suited to row crops. They produce, at best, only medium yields of corn, cotton, and tobacco. They produce good yields of small grain because the grain grows and matures during the part of the year when moisture is plentiful. Tilth can be improved and the available water capacity increased by maintaining the supply of organic matter. These soils should be worked only within a narrow range of moisture content. Under good management tall fescue, orchardgrass, bermudagrass, white clover, annual lespedeza, and sericea lespedeza grow well. Alfalfa can be grown successfully, but good stands are somewhat difficult to establish and maintain. Most of the cherty areas and areas where bedrock crops out are better suited to crops that do not need much tillage than to crops that need to be cultivated frequently.

Cultivated crops should not be grown more than once every 4 to 6 years. An example of a suitable cropping system is a row crop, then a small grain, then sod for 3 or more years. Another example is a row crop followed by hay or sod 4 or more years.

These soils erode readily, and practices to control water erosion are important. After each row crop is harvested, a winter cover crop of crimson clover, vetch, or a small grain should be seeded, to protect the soil from rainstorms in winter and early in spring. Terraces, diversions, contour stripcropping, and contour cultivation reduce runoff.

CAPABILITY UNIT IVw–1

This unit consists of gray, poorly drained soils on upland flats. These soils have a fragipan at a depth of 15 to 30 inches. The pan restricts the penetration of plant roots and the movement of air and water. Runoff is slow, and in most places ponding is common.

These soils are usually saturated in winter and early in spring, but they are easy to work when they dry out.

Most of the areas are poorly suited to row crops. If these soils are drained, they produce fair yields of a few kinds of crops, for example, soybeans and other summer annuals that can be planted late in spring and harvested early in fall. They are better suited to permanent pasture of water-tolerant plants. Tall fescue, redtop, white clover, and annual lespedeza are suitable. Sudangrass, pearl millet, and sudangrass-sorghum hybrids are suitable for supplemental summer pasture.

Drainage can be improved in most places by open ditches. In some places drainage is not economical because of the distance to suitable outlets. Wooded areas should remain in trees unless the need for additional pasture justifies the cost of clearing and draining. Grazing should be carefully controlled because pastures are easily damaged by trampling in winter and early in spring.

CAPABILITY UNIT VIe–1

This unit consists of deep, loamy soils on moderately steep to steep slopes. These soils have a subsoil of friable silty clay loam or clay loam that is permeable to air, water, and roots. They are medium to low in available water capacity. Tillage is difficult because of the slope and, in places, the content of chert. Tilth is poor in severely eroded areas.

These soils are poorly suited to crops that need tillage. They are better suited to permanent pasture and hay. All of the common grasses and legumes can be grown, including orchardgrass, tall fescue, bermudagrass, white clover, annual lespedeza, sericea lespedeza, and alfalfa.

These soils should be plowed only when reseeding pasture or hay. On long steep slopes, seeding should be done in alternate contour strips. All of these areas need lime and fertilizer to produce high yields of forage, but the slope makes application difficult. Diversions can be used in many places to channel runoff to vegetated outlets.

CAPABILITY UNIT VIe–2

This unit consists of soils that have a thin surface layer and a clayey subsoil. These soils are medium to low in available water capacity. The slope range is 5 to 30 percent. In some places there are a few outcrops of bedrock.

These soils are poorly suited to crops that need tillage. Selected crops can be grown occasionally in some areas, but special practices and careful management are needed to control runoff and erosion. Drought severely reduces yields of most crops.

These soils are suited to permanent pasture or hay. Alfalfa can be grown on some of the soils, but a good seedbed is generally difficult to prepare, and good stands are hard to establish and maintain, especially in severely eroded areas. A few of the more severely eroded areas are better suited to trees than to other vegetation.

CAPABILITY UNIT VIs–1

This unit consists of Bodine cherty silt loam, 5 to 20 percent slopes, an excessively drained, very cherty soil on uplands. This soil is low in available water capacity. Its chert content ranges from 15 to 50 percent in the surface layer and is as much as 75 percent in the subsoil. It is hard to work and low in productivity because of the high chert content.

This soil is poorly suited to crops that need tillage. Selected crops can be grown occasionally, but yields are generally low. Permanent pasture or hay is better suited. Yields of tall fescue, bermudagrass, redtop, white clover, sericea lespedeza, and annual lespedeza are fair to good. Alfalfa and orchardgrass can be grown on some of the deeper areas, but preparing a good seedbed is difficult and establishing and maintaining good stands is difficult. Careful management is needed to prevent damage to pastures from overgrazing, especially during dry spells.

CAPABILITY UNIT VIs–2

This unit consists of very rocky areas on sloping to steep uplands. Outcrops of limestone cover 10 to 40 percent of the surface. The soil material between the outcrops ranges from a few inches to several feet in thickness. It is low in available water capacity. It is fine textured, and its texture, combined with shallownes and rockiness, makes tillage difficult in most places.

The soils in this unit are not suited to crops that need tillage, and they vary considerably in their suitability for pasture and hay. Woodland is a better use for many of the areas. Under good management, fair to good yields of forage are produced on some of the deeper, more fertile

soils. Tall fescue, bermudagrass, redtop, white clover, sericea lespedeza, and annual lespedeza are suitable pasture plants. Alfalfa and orchardgrass can be grown on some of the deeper areas.

These soils should be plowed or disked only to prepare a seedbed for reestablishing pasture or hay. Alternate contour strips are the safest and most efficient way to establish pasture on long slopes. A strip near the top of the slope should be seeded first; this strip then protects strips farther down the slope. Diversions can be used in many areas to intercept runoff. Careful management is needed to prevent damage from overgrazing, especially during dry spells.

CAPABILITY UNIT VIIe-1

This unit consists mainly of cherty soils on steep and very steep hills. Most of the soils are low in available water capacity. Runoff is rapid to very rapid, and the erosion hazard is severe, especially in areas that have been cleared.

These soils are used for pasture on many farms, but they are better suited to trees. Most of the cleared areas should be reforested. Loblolly pine, black walnut, yellow-poplar, red oak, and white oak grow well on most of the soils. Black locust grows well and regenerates rapidly enough to reforest naturally the phosphatic soils and most areas of Gullied land. Redcedar is suited to the more exposed sites, which are less suitable for other species.

Areas where the soil material is deep and the slope is less than 20 percent can be reclaimed and used for crops and pasture, but the expense is high. Many areas of these soils are suitable as habitats for wildlife.

CAPABILITY UNIT VIIs-1

This unit consists of soils and land types that are very cherty, steep, shallow, and broken by many outcrops of bedrock. The soils are low in available water capacity. Runoff is rapid to very rapid.

These areas are suited mainly to trees. Loblolly pine is suited to the Bodine soil. Redcedar, which establishes itself in most places if protected from fire and grazing animals, can be grown on Rockland and the very rocky soils.

Estimated Yields

Table 3 gives yields of the principal crops grown in Giles County under good management. This table can be used to compare yields of specified crops and forage on different soils, to compare yields of different crops and forage on the same soil, or to predict the yield of a specified crop on a specified soil under similar management.

The estimates are based on field observations, on interviews with farmers and other agricultural workers in the county, and on yield data from similar soils in adjoining counties. The defined management practices are based on research. It is assumed that rainfall is average over a long period of time, that crops are not irrigated, and that there is no overflow hazard. Estimates are given only for crops commonly grown on the specified soil. The miscellaneous land types in this county are not suitable for crops without major reclamation, and for this reason, yields are not estimated. The yields estimated in table 3 are about 35 percent higher than yields that can be expected under common management.

Good management is assumed to include the following:

1. Fertilizer is applied according to the needs indicated by soil tests and by past cropping experience.
2. Crop varieties that produce high yields in the area are used.
3. Seedbeds are properly prepared.
4. Seeding mixtures are used at proper planting rates, and crops are planted at suitable times and by suitable methods.
5. Shallow cultivation methods are used for row crops.
6. Legumes are inoculated.
7. Weeds, insects, and diseases are controlled.
8. Grazing is regulated.
9. Cropping systems suggested in the section on management by capability units are followed.

The yields in table 3 can be obtained only if lime and fertilizer are applied according to the results of soil tests, or at rates appropriate for seeding or planting of specified crops, as given in the following paragraphs.

The following paragraphs give seeding rates as they relate to fertilization rates for some of the crops commonly grown in the county.

Corn.—Phosphatic soils that can produce 100 or more bushels of corn per acre require, per acre, 100 to 125 pounds of nitrogen (N), 20 pounds of phosphate (P_2O_5), and 36 to 48 pounds of potash (K_2O); nonphosphatic soils require the same amounts of nitrogen and potash, but 36 to 48 pounds of phosphate. Planting for both phosphatic and nonphosphatic soils should be at a rate sufficient to produce 14,000 to 16,000 plants per acre.

Phosphatic soils that can produce 80 to 100 bushels of corn per acre require, per acre, 80 to 100 pounds of nitrogen, 20 pounds of phosphate, and 24 to 36 pounds of potash; nonphosphatic soils require the same amounts of nitrogen and potash, but 24 to 36 pounds of phosphate. Planting for both phosphatic and nonphosphatic soils should be at a rate sufficient to produce 10,000 to 12,000 plants per acre.

Soils that can produce 50 to 80 bushels of corn per acre require, per acre, 60 to 75 pounds of nitrogen, 12 to 24 pounds of phosphate, and 12 to 24 pounds of potash. Planting should be at a rate sufficient to produce 6,000 to 9,000 plants per acre.

Soils that yield 40 bushels or less per acre under good management are poorly suited to corn and can be used more profitably for other crops.

Cotton.—Phosphatic soils that can produce 1½ to 2 bales of cotton per acre require, per acre, 70 to 90 pounds of nitrogen, 27 to 36 pounds of phosphate, and 54 to 72 pounds of potash; nonphosphatic soils require the same amount of nitrogen, but 60 to 72 pounds of phosphate and 60 to 72 pounds of potash. Planting for both phosphatic and nonphosphatic soils should be at a rate sufficient to produce 16,000 to 22,000 plants per acre, or plants spaced 7 to 9 inches apart in rows that are 40 to 42 inches wide.

Phosphatic soils that can produce 1 bale to 1½ bales of cotton per acre require 50 to 60 pounds of nitrogen, 18 to 27 pounds of phosphate, and 36 to 54 pounds of potash; nonphosphatic soils require the same amount of nitrogen, but 48 to 60 pounds of phosphate and 48 to 60 pounds of potash. Planting for both phosphatic and nonphosphatic

TABLE 3.—*Estimated average yield per acre of principal crops under good management*

[Dashed lines indicate that the crop is not suited to the soil or is not commonly grown on it]

Soil	Corn	Cotton	Oats	Burley tobacco	Alfalfa	Lespedeza (seeded alone)	Permanent pasture
	Bu.	*Lb. of lint*	*Bu.*	*Lb.*	*Tons*	*Tons*	*Cow-acre-days* [1]
Armour silt loam, 0 to 2 percent slopes	95	850	70	2, 300	3. 5	1. 8	220
Armour silt loam, 2 to 5 percent slopes	85	800	70	2, 200	3. 8	1. 8	210
Armour silt loam, 5 to 12 percent slopes, eroded	78	700	65	2, 000	3. 6	1. 4	195
Ashwood silty clay loam, 5 to 12 percent slopes	40	350	40	1, 200	2. 0	. 8	115
Ashwood silty clay loam, 12 to 20 percent slopes			28		1. 8	. 6	80
Bodine cherty silt loam, 5 to 20 percent slopes			30			. 5	60
Bodine cherty silt loam, 20 to 45 percent slopes							45
Braxton cherty silt loam, 2 to 5 percent slopes, eroded	62	550	60	1, 850	3. 0	1. 1	170
Braxton cherty silt loam, 5 to 12 percent slopes, eroded	55	475	50	1, 600	2. 7	1. 0	150
Braxton cherty silt loam, 12 to 20 percent slopes, eroded	40	425	45	1, 300	2. 4	. 8	130
Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	30	325	40		1. 9	. 6	110
Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded					1. 5	. 3	80
Braxton silty clay loam, 5 to 12 percent slopes, severely eroded	44	475	50	1, 450	2. 9	. 9	135
Braxton silty clay loam, 12 to 20 percent slopes, severely eroded					2. 4	. 7	95
Culleoka loam, 5 to 12 percent slopes, eroded	70	650	65	2, 000	3. 0	1. 3	185
Culleoka loam, 5 to 12 percent slopes, severely eroded	52	450	50	1, 600	2. 4	. 8	155
Culleoka loam, 12 to 20 percent slopes, eroded	58	575	55	1, 750	2. 7	1. 2	165
Culleoka loam, 12 to 20 percent slopes, severely eroded					2. 0	. 6	100
Culleoka loam, 20 to 35 percent slopes					1. 7	. 7	125
Culleoka loam, 20 to 35 percent slopes, severely eroded							85
Culleoka flaggy loam, 15 to 35 percent slopes					1. 5	. 5	75
Dellrose cherty silt loam, 2 to 5 percent slopes	72	650	65	1, 900	3. 0	1. 3	165
Dellrose cherty silt loam, 5 to 12 percent slopes	65	550	57	1, 800	2. 8	1. 1	155
Dellrose cherty silt loam, 5 to 12 percent slopes, severely eroded	50	400	45	1, 500	2. 3	. 7	135
Dellrose cherty silt loam, 12 to 20 percent slopes	55	450	50	1, 700	2. 5	1. 0	135
Dellrose cherty silt loam, 12 to 20 percent slopes, severely eroded					1. 6	. 4	90
Dellrose cherty silt loam, 20 to 30 percent slopes					1. 7	. 7	120
Dellrose cherty silt loam, 20 to 30 percent slopes, severely eroded							85
Dellrose cherty silt loam, 30 to 45 percent slopes							80
Dellrose coarse cherty silt loam, 12 to 20 percent slopes					1. 6	. 6	75
Dellrose coarse cherty silt loam, 20 to 45 percent slopes							50
Dickson silt loam, 2 to 5 percent slopes	70	650	65	1, 700	2. 0	1. 5	155
Donerail silt loam, 2 to 5 percent slopes	65	575	65	1, 600		1. 7	160
Dowellton silt loam	45	350	40			1. 1	140
Etowah cherty silt loam, 5 to 12 percent slopes	65	550	55	1, 750	2. 6	1. 0	155
Etowah cherty silt loam, 12 to 20 percent slopes	55	450	45	1, 700	2. 4	. 9	135
Fullerton cherty silt loam, 12 to 20 percent slopes	48	425	45	1, 400	2. 3	. 7	130
Fullerton cherty silt loam, 2 to 5 percent slopes	60	550	60	1, 850	2. 7	1. 0	170
Fullerton cherty silt loam, 5 to 12 percent slopes	52	500	55	1, 650	2. 6	. 9	150
Fullerton cherty silt loam, 20 to 30 percent slopes						. 5	110
Fullerton cherty silt loam, 30 to 40 percent slopes							60
Fullerton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	30	325	40	1, 200	1. 9	. 5	110
Fullerton cherty silty clay loam, 12 to 20 percent slopes, severely eroded					1. 5	. 4	85
Fullerton cherty silty clay loam, 20 to 30 percent slopes, severely eroded							70
Godwin silt loam	80	675	65	1, 600		1. 9	200
Greendale silt loam	100	900	65	2, 300	3. 0	1. 9	220
Greendale cherty silt loam	70	700	60	1, 900	2. 7	1. 3	175
Guthrie silt loam	43	400	35			1. 0	140
Hampshire silt loam, 3 to 12 percent slopes, eroded	45	475	50	1, 600	2. 9	1. 0	135
Hampshire silt loam, 12 to 20 percent slopes, eroded					2. 4	. 7	110
Humphreys cherty silt loam, 2 to 5 percent slopes	67	600	60	1, 750	2. 7	1. 2	160
Humphreys cherty silt loam, 5 to 12 percent slopes	60	525	55	1, 650	2. 5	1. 0	150
Inman silty clay, 10 to 25 percent slopes, severely eroded							55
Lanton silt loam	85	575	40			1. 9	175
Lee silt loam	50	425				1. 4	140
Lobelville cherty silt loam	70	600	50	1, 450		1. 5	175
Lobelville silt loam	85	750	60	1, 550		1. 9	200
Lynnville cherty silt loam	75	650	50	1, 600	1. 7	1. 5	180
Lynnville silt loam	100	800	65	1, 650	1. 8	2. 0	215
Maury silt loam, 2 to 5 percent slopes	80	850	70	2, 100	4. 0	1. 7	205
Maury silt loam, 5 to 12 percent slopes, eroded	70	750	62	1, 900	3. 8	1. 4	180
Maury silt loam, 12 to 20 percent slopes, eroded	55	650	55	1, 650	3. 3	1. 1	155
Mercer silt loam, 0 to 2 percent slopes	75	650	60	1, 600	1. 9	1. 8	165

See footnote at end of table.

TABLE 3.—*Estimated average yield per acre of principal crops under good management*—Continued

Soil	Corn	Cotton	Oats	Burley tobacco	Alfalfa	Lespedeza (seeded alone)	Permanent pasture
	Bu.	*Lb. of lint*	*Bu.*	*Lb.*	*Tons*	*Tons*	*Cow-acre-days* [1]
Mercer silt loam, 2 to 5 percent slopes	70	625	65	1,800	2.2	1.8	155
Mercer silt loam, 2 to 5 percent slopes, eroded	65	600	65	1,800	2.2	1.7	155
Mimosa silt loam, 4 to 12 percent slopes, eroded	45	400	50	1,400	2.7	1.1	135
Mimosa silt loam, 12 to 20 percent slopes, eroded					2.3	.9	105
Mimosa cherty silt loam, 5 to 12 percent slopes, eroded	40	400	43	1,400	2.4	.9	105
Mimosa cherty silt loam, 12 to 20 percent slopes			35		2.1	.7	90
Mimosa cherty silt loam, 20 to 30 percent slopes							75
Mimosa cherty silty clay, 5 to 20 percent slopes, severely eroded					1.4	.3	60
Mimosa cherty silty clay, 20 to 30 percent slopes, severely eroded							45
Mimosa silty clay, 5 to 20 percent slopes, severely eroded					1.5	.5	80
Mimosa-Ashwood very rocky complex, 5 to 20 percent slopes						.7	65
Mimosa-Ashwood very rocky complex, 20 to 40 percent slopes							45
Mountview silt loam, 2 to 5 percent slopes	75	750	65	2,300	2.8	1.6	200
Mountview silt loam, 5 to 12 percent slopes, eroded	62	650	60	2,100	2.7	1.4	185
Mountview cherty silt loam, 2 to 5 percent slopes	60	500	55	1,850	2.5	1.1	165
Mountview cherty silt loam, 5 to 12 percent slopes	54	480	50	1,700	2.4	.9	150
Mountview cherty silt loam, 5 to 12 percent slopes, severely eroded	35	375	35	795	1.9	.5	85
Newark silt loam	65	500	40			1.6	170
Pickwick silt loam, 2 to 5 percent slopes	80	850	70	2,300	4.0	1.7	210
Pickwick silt loam, 5 to 12 percent slopes, eroded	70	750	65	2,000	3.7	1.4	190
Pickwick silt loam, 5 to 12 percent slopes, severely eroded	45	500	50	1,500	3.1	1.0	155
Roellen silty clay loam	50	450				1.4	155
Staser cherty silt loam	85	650	58	1,850	2.8	1.7	175
Staser silt loam	110	900	65	2,200	3.0	2.0	220
Stiversville silt loam, 5 to 12 percent slopes, severely eroded	52	500	55	1,550	2.9	1.0	155
Taft silt loam	50	450	45			1.2	150
Talbott silt loam, 2 to 5 percent slopes, eroded	47	500	55	1,500	2.3	1.1	145
Talbott silt loam, 5 to 12 percent slopes, eroded	40	400	45	1,400	1.9	.8	130
Talbott silty clay, 3 to 12 percent slopes, severely eroded					1.2	.5	75
Talbott very rocky complex, 2 to 20 percent slopes							60
Tupelo silt loam	50	450	45			1.3	150
Woolper silty clay loam	85	700	55	1,750	2.5	2.0	200

[1] Cow-acre-days is a term used to express the carrying capacity of pasture. It is the number of animal units carried per acre multiplied by the number of days the pasture is grazed during a single grazing season without injury to the sod. An acre of pasture that provides 30 days of grazing for two cows has a carrying capacity of 60 cow-acre-days.

soils should be at a rate sufficient to produce 12,000 to 15,000 plants per acre, or plants spaced 10 to 12 inches apart in rows that are 40 to 42 inches wide.

Soils that yield less than 1 bale of cotton per acre under good management are poorly suited to cotton and can be used more profitably for other crops.

SMALL GRAINS.—Phosphatic soils that can produce the yields of oats given in table 3 require, per acre, at planting time, 15 to 20 pounds of nitrogen, 12 to 20 pounds of phosphate, and 20 to 40 pounds of potash; nonphosphatic soils require the same amounts of nitrogen and potash, but 36 to 48 pounds of phosphate. In addition, a topdressing of 30 pounds of nitrogen is needed in spring on both phosphatic and nonphosphatic soils.

BURLEY TOBACCO.—Phosphatic soils planted to burley tobacco require 100 to 150 pounds of nitrogen, 20 to 30 pounds of phosphate, and 180 to 225 pounds of potash; nonphosphatic soils require the same amounts of nitrogen and potash, but 120 to 150 pounds of phosphate. In addition, a leguminous green-manure crop should be grown annually and barnyard manure should be applied annually. Planting should be at a rate of 8,500 to 10,000 plants per acre. Soils that are subject to flooding should not be used for burley tobacco.

ALFALFA.—To obtain the yields of alfalfa listed in table 3, enough lime should be added to bring the pH to about 7.0. Phosphatic soils require, per acre, just before seeding, 24 to 30 pounds of nitrogen, 20 to 30 pounds of phosphate, 140 to 180 pounds of potash, and 20 pounds of borax; nonphosphatic soils require the same amount of nitrogen and potash, but 72 to 90 pounds of phosphate and 20 pounds of borax. To maintain the stands, lime should be applied as needed to keep the pH near 7.0. After the first year, fertilizer should be applied in amounts determined by soil tests, or at a rate of 45 to 75 pounds of phosphate, 125 to 200 pounds of potash, and 20 pounds of borax before the alfalfa starts growing in spring. Also needed are proper mowing and controlled grazing. Alfalfa should not be cut for hay between about September 15 and the date of the first killing frost.

LESPEDEZA (KOREAN AND KOBE).—Under good management, lespedeza seeded alone on a well-prepared seedbed requires, per acre, at seeding time, 30 to 40 pounds of potash. Phosphatic soils require 10 to 15 pounds of phosphate per acre, and nonphosphatic soils 30 to 40 pounds. Lespedeza overseeded on small grain in spring requires, per acre, when the small grain is seeded in fall, 36 to 72 pounds of potash. In addition, phosphatic soils need 18 to 36 pounds of phosphate, and nonphosphatic soils 36 to 60 pounds. In spring, 15 to 30 pounds of nitrogen should be applied as a topdressing. Heavy applications of nitrogen in spring tend to reduce the stand.

Because oats are more competitive than wheat or barley, they are less desirable for overseeding with lespedeza. Yields of lespedeza overseeded on small grain are generally about 25 percent less than yields of lespedeza seeded alone.

PERMANENT PASTURE.—To establish permanent pasture under good management, lime and fertilizer needs per acre are (1) before seeding, 2 to 3 tons of lime; (2) at seeding time, on phosphatic soils, 15 to 20 pounds of nitrogen, 45 to 60 pounds of phosphate, and 90 to 125 pounds of potash; on nonphosphatic soils, 25 to 30 pounds of nitrogen, 100 to 120 pounds of phosphate, and 100 to 120 pounds of potash. To maintain permanent pasture, lime and fertilizer needs, per acre, are (1) annually, early in spring, 30 pounds of nitrogen and 60 to 90 pounds of potash as topdressing on phosphatic soils; 30 pounds of nitrogen, 60 pounds of phosphate, and 60 to 90 pounds of potash on nonphosphatic soils; (2) lime as needed to keep the pH between 6.2 and 7.0. In addition, grazing should be controlled and the pasture should be clipped frequently to control weeds.

Suitable mixtures for permanent pasture are either orchardgrass and white clover or tall fescue and white clover. Bluegrass, bermudagrass, redtop, alfalfa, sericea lespedeza, and annual lespedeza are better suited to some soils and may be substituted for a grass-clover mixture or used with it.

Woodland [3]

This section interprets the soils of the county in terms of productivity for wood crops and soil-related limitations in the production and management of wood crops.

Before the county was settled, it was covered with dense hardwood forest, except that vast canebrakes flourished along many of the streams.

In 1958 about 30 percent of the land area of Giles County, or 120,400 acres, was in woodland, all of which was privately owned. Between 1952 and 1964, more than 8,500 acres was planted to trees. It is estimated that by 1975 almost 150,000 acres will be in woodland (7). The principal commercial species in this county are yellow-poplar, white oak, red oak, white ash, black walnut, hickory, black locust, maple, loblolly pine, shortleaf pine, and redcedar.

In 1964 the county had four permanently located, small circular sawmills, one band mill, two portable sawmills that operated part time, and a hickory handle plant. These mills employ about seventy persons. More are employed in cutting, skidding, and hauling timber products from the woods to the several mills. One part-time pulpwood producer operates in the county. Many of the logs are sold to manufacturers in nearby counties, as is most of the lumber. Locust and cedar posts are sold locally or to concentration yards in adjoining counties.

The soils of Giles County have been placed in eight woodland groups, based on potential for production of wood crops and characteristics affecting management. Each group consists of soils that are about the same in productivity and that have soil-related limitations that require similar management. The soils in each group can be identified by referring to the "Guide to Mapping Units" at the back of this publication.

[3] By C. M. HENNINGER, woodland conservationist, Soil Conservation Service, Nashville, Tennessee.

Table 4 gives in summary form the relative severity of soil-related limitations for each of the eight woodland groups and estimates of productivity of the soils for common wood crops.

Explanations of the ratings used in table 4 follow.

PLANT COMPETITION.—This refers to the rate of invasion by unwanted trees, shrubs, and vines when openings are made in the canopy. Competition is slight if unwanted plants do not prevent adequate natural regeneration, interfere with early growth, or restrict the normal development of planted seedlings. Competition is moderate if unwanted plants delay establishment and hinder the growth of either planted stock or naturally regenerated seedlings, or if they retard the eventual development of a fully stocked stand. Competition is severe if unwanted plants prevent adequate restocking, either by natural regeneration or by planting, without intensive preparation of the site and without special maintenance practices, including weeding.

EQUIPMENT LIMITATION.—Certain soil characteristics and topographic features restrict or prevent the use of conventional equipment for planting and harvesting wood crops, for constructing roads, for controlling unwanted vegetation, and for controlling fires. The limitation is slight if there is little or no restriction on the type of equipment that can be used or on the time of year that equipment can be used. It is moderate if the use of equipment is restricted by slope, stones or other obstructions, seasonal wetness, instability, or risk of injury to roots of trees. The limitation is severe if special equipment is needed and if the use of such equipment is severely restricted by one or more unfavorable soil characteristics.

SEEDLING MORTALITY.—This refers to the expected loss of seedlings as a result of unfavorable soil characteristics or topographic features, not as a result of plant competition. Even if healthy seedlings of suitable species are planted correctly or occur naturally in adequate numbers, some will not survive if conditions are unfavorable. Mortality is slight if less than 25 percent of the seedlings die; moderate if 25 to 50 percent die; and severe if more than 50 percent die.

EROSION HAZARD.—This refers to the degree of potential soil erosion when timber is cut and removed from the soil. The rating is slight if problems of erosion control are unimportant. A rating of moderate indicates that some attention must be given to control of soil erosion. A rating of severe indicates that intensive treatments are needed, special methods must be used, and specialized equipment is necessary.

POTENTIAL SOIL PRODUCTIVITY.—Potential productivity is expressed as the site index, which is the average height, in feet, that the dominant and codominant trees of a given species, growing on the specified group of soils, will reach in 50 years. The average site indexes given in this report are based on measurements of trees of different species. Table 4 gives the average site indexes for the principal kinds of trees on the soils of each woodland group and the average annual yields in board feet, measured by International rule, based on the average site index.

SPECIES SUITABILITY.—This indicates which species of trees should be favored in the management of existing stands and which species are suitable for planting. The listings in table 4 are not in order of priority

TABLE 4.—*Woodland*

Woodland group	Potential productivity			
	Species or forest type	Site index [1] and basis for calculation		Estimated annual yields of sawtimber per acre [2]
		Site index and standard deviation	No. of plots sampled	
				Board feet (International rule)
Group 1: Well drained and moderately well drained, nearly level soils on bottom lands and low terraces; very deep, permeable root zone; very high available water capacity (Gr, Gs, Lh, Lo, Lt, Ly, Sr, Ss, and Wo).	Yellow-poplar	97±10	13	510
	Upland oaks	84±11	6	330
	Loblolly pine	87	(3)	610
Group 2: Well-drained soils mainly on terraces and uplands; medium-textured subsoil; deep, permeable root zone; high available water capacity (ArA, ArB, ArC2, CuC2, CuC3, CuD2, CuD3, CuE, CuE3, CyE, DeB, DeC, DeC3, DeD, DeD3, DeE, DeE3, DeF, DID, DIF, EtC, EtD, HuB, HuC, MbB, MbC2, MbD2, MvB, MvC, MvC3, MwB, MwC2, PcB, PcC2, PcC3, and StC3).	Yellow-poplar	95±12	13	500
	Upland oaks	73±6	4	220
	Loblolly pine	77±3	6	480
Group 3: Well-drained to excessively drained, cherty soils on hilly and steep uplands; moderately deep to very deep, permeable root zone; medium to low available water capacity (BoD, BoF, FaB, FaC, FaD, FaE, FaF, FcC3, FcD3, and FcE3).	Yellow-poplar	91±10	26	450
	Upland oaks	69±10	19	190
	Loblolly pine	84	(3)	570
	Shortleaf pine	58±10	10	340
Group 4: Well-drained soils mainly on rolling and hilly uplands; thin, medium-textured surface layer and clayey subsoil; slowly permeable root zone, 2 to 4 feet thick; fairly low available water capacity (AsC, AsD, BrB2, BrC2, BrD2, BsC3, BsD3, BtC3, BtD3, HaC2, HaD2, InD3, MmC2, MmD, MmE, MnD3, MnE3, MoC2, MoD2, MpD3, TbB2, TbC2, and TcC3).	Yellow-poplar	85	(3)	385
	Upland oaks	71	(3)	200
	Loblolly pine	78	(3)	490
	Shortleaf pine	68	(3)	470
Group 5: Moderately well drained soils that have a fragipan; slowly permeable below a depth of 2 feet; medium available water capacity (DnB, DoB, McA, McB, and McB2).	Yellow-poplar	94±11	6	485
	Upland oaks	78±11	15	270
	Loblolly pine	86	(3)	600
	Shortleaf pine	64	3	420
Group 6: Poorly drained and somewhat poorly drained soils that have a fragipan; frequently flooded in winter and spring (Go, La, Le, Ne, and Ro).	Sweetgum	90	(3)	440
	Cottonwood	100	(3)	645
Group 7: Poorly drained and somewhat poorly drained soils that have a fragipan; frequently ponded in winter and spring (Dw, Gw, Ta, and Tu).	Yellow-poplar	98±9	4	530
	Upland oaks	72±10	21	210
	Lowland oaks	87±11	4	410
	Loblolly pine	79±3	4	510
Group 8: Land types and soil complexes that are extremely variable in texture, composition, and slope (Gu, Ma, MsD, MsF, Mt, Mu, RI, Se, and TrD).	(4)	(4)	(4)	(4)

[1] Site index for all species except cottonwood is based on height at 50 years of age; site index for cottonwood is based on height at 30 years of age.

[2] Estimates are for well-stocked, managed stands up to 60 years of age for all species except cottonwood; estimates for cottonwood are for stands up to 30 years of age. Yield data for hardwoods are from table 7 of USDA Handbook 181 (*5*) using diameter-growth data from

Wildlife and Fish [4]

Hunting and fishing are popular forms of recreation in Giles County. Increases in the game and fish populations can be encouraged by suitable management of the soils and of the surface waters.

This section discusses the food and cover needs of the native wildlife of Giles County. The soils of the county have been grouped according to their capacity for producing the plants that provide food and cover for wildlife. Specified plants are rated as to suitability to the soils of each wildlife group and as food for specified kinds of wildlife.

Assistance in planning and maintaining habitats for

[4] This section was prepared by FLOYD R. FESSLER, biologist, Soil Conservation Service.

groups of soils

Species suitability			Hazards and limitations		
Favor in existing stands	Favor in planting	Plant competition	Equipment limitations	Seedling mortality	Erosion hazard
Yellow-poplar, upland oaks, black walnut, and white ash.	Yellow-poplar, black walnut, and loblolly pine.	Severe	Slight	Slight	Slight.
Yellow-poplar, upland oaks, black walnut, and white ash.	Yellow-poplar, black walnut, and loblolly pine.	Moderate to severe.	Slight to moderate; severe where slope is more than 20 percent.	Slight	Slight to severe, depending on slope.
Yellow-poplar, upland oaks, shortleaf pine, and loblolly pine.	Loblolly pine and shortleaf pine.	Moderate	Moderate; severe where slope is more than 20 percent.	Slight	Moderate to severe, depending on slope.
Yellow-poplar, upland oaks, redcedar, and loblolly pine.	Loblolly pine and shortleaf pine.	Slight to moderate.	Moderate; severe where eroded or where slope is more than 20 percent.	Slight to severe.	Moderate to severe.
Yellow-poplar, upland oaks, and loblolly pine.	Loblolly pine	Moderate	Moderate	Slight	Slight.
Lowland oaks, white oak, yellow-poplar, sweetgum, and red maple.	Loblolly pine	Severe	Moderate	Moderate	Slight.
Lowland oaks, white oak, yellow-poplar, sweetgum, and red maple.	Loblolly pine	Moderate	Severe	Moderate	Slight.
Redcedar, shortleaf pine, loblolly pine, and black locust.	Locust in phosphatic mined land; pine in other areas that are suitable for vegetation.	Slight to moderate.	Severe	Slight to severe.	Slight to severe.

soil-site evaluations made by the Soil Conservation Service. Yield data for pine are from tables 54 and 118 of USDA Miscellaneous Publication 50 (*12*). Yield figures for pine were converted from International ⅛″ rule to International ¼″ rule by the factor 0.905.

[3] Site index is estimated from data for similar soils.

[4] Data not available.

fish and wildlife can be obtained from the local staff of the U.S. Soil Conservation Service (SCS).

Food and cover needed by wildlife

The habitat needs of wildlife vary. Some kinds live in woodland, some on open farmland, and others on wetland. Some species eat only insects and smaller animals, others eat only vegetative foods, and some eat a combination of the two. Largemouth bass and bluegill prefer warm water, but trout need cold water.

Following is a summary of the needs of the kinds of wildlife and fish most numerous in Giles County.

BOBWHITE (QUAIL).—Bobwhites prefer acorns, seeds, and fruits, but they also eat many kinds of insects. Their food must be close to sheltering vegetation, for shade and for protection from predators and bad weather.

DEER.—Deer live chiefly in wooded areas of 500 acres or more. They feed on the tender parts of grasses, herbs, shrubs, vines, and trees. They also like acorns, corn, soybeans, and similar foods. They drink water frequently, and sources of water should be not more than a mile apart.

DOVES (MOURNING).—Doves eat only the seeds of plants. They do not scratch for food as do other birds, and they subsist on seeds found on open ground. They do not eat insects, green leaves, or fruits. They drink water daily.

DUCKS.—Wild ducks prefer their food covered with water, though they occasionally feed on dry land when flooded food is not available. Mallards and pintails feed in water not more than 15 inches deep. They do not dive for their food.

GEESE.—Wild geese feed on corn and other grains, and they eat clover, rye, ryegrass, wheat, and other green winter crops. These are migratory birds; they use ponds, lakes, and other bodies of water for resting and drinking.

RABBITS (COTTONTAIL).—Rabbits need brushy areas interspersed with grass. Rabbits are a primary food of many kinds of predators, and therefore need protective cover, such as brier patches. Clover, winter grains, and grasses near suitable cover provide attractive food for rabbits.

SQUIRRELS.—Squirrels generally prefer mixed woodlands where acorns, nuts, fruits, and seeds are plentiful. They also like corn. Squirrels nest in trees and need den holes for shelter and for raising their young.

TURKEY.—Wild turkeys thrive only in wooded areas that are a thousand acres or more in size. They eat insects, acorns, grapes, seeds of grasses and pines, and, in winter and spring, green forage. These birds require water daily, and sources of water should be not more than half a mile apart.

NONGAME BIRDS.—Several species of nongame birds eat nothing but insects, a few eat insects and fruits, and others eat insects as well as acorns, nut meats, and fruits.

FISH.—Warm-water ponds are needed for largemouth bass, bluegill, redear sunfish, and channel catfish. Small fish are essential as food for bass and channel catfish. The choice foods for bluegill and redear sunfish are mainly aquatic worms, insects, and insect nymphs and larvae.

The amount of food for fish produced in ponds is directly related to the fertility of the soils of the watershed and,

TABLE 5.—*Suitability of plants for the soils in*

[Dashed lines indicate that the plant is unimportant as food for that species. Ratings are not given for wildlife

Kind of plant	Wildlife groups								
	1	2	3	4	5	6	7	8	9
Alfalfa	Marginal	Suited	Suited	Not suited	Not suited	Marginal	Not suited	Not suited	Not suited
Amaranth (pixweed).	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Not suited	Not suited	Marginal
Ash, green and white.	Suited	Suited	Not suited	Not suited	Marginal	Marginal	Marginal	Marginal	Marginal
Barley	Suited	Suited	Marginal	Not suited	Marginal	Suited	Not suited	Not suited	Not suited
Barnyard grass	Suited	Marginal	Marginal	Not suited	Marginal	Marginal	Suited	Suited	Suited
Beech	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Marginal	Marginal	Not suited
Blackberry	Suited	Suited	Marginal	Not suited	Marginal	Suited	Not suited	Not suited	Suited
Blackgum	Suited	Suited	Not suited	Not suited	Marginal	Marginal	Marginal	Marginal	Marginal
Black locust	Suited	Suited	Marginal	Not suited	Marginal	Not suited	Not suited	Not suited	Not suited
Bristlegrass	Marginal	Suited	Marginal	Not suited	Not suited	Suited	Not suited	Not suited	Not suited
Browntop millet	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Not suited	Not suited	Marginal
Buckwheat	Suited	Suited	Not suited	Not suited	Marginal	Suited	Not suited	Not suited	Not suited
Cherry, black	Suited	Suited	Marginal	Not suited	Marginal	Not suited	Not suited	Not suited	Not suited
Chufa	Suited	Not suited	Not suited	Not suited	Not suited	Not suited	Suited	Suited	Suited
Clover, crimson and white (forage).	Suited	Suited	Suited	Marginal	Marginal	Suited	Marginal	Marginal	Marginal
Corn [4]	Suited	Suited	Not suited	Not suited	Not suited	Suited	Marginal	Not suited	Marginal
Cowpeas [4]	Suited	Suited	Not suited	Not suited	Not suited	Suited	Marginal	Marginal	Marginal
Crabapple	Suited	Suited	Marginal	Marginal	Marginal	Marginal	Not suited	Not suited	Not suited
Dewberry	Suited	Suited	Marginal	Marginal	Marginal	Suited	Not suited	Not suited	Marginal
Dogwood	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited	Not suited	Not suited
Elder	Suited	Suited	Marginal	Not suited	Not suited	Marginal	Suited	Suited	Suited
Elm	Suited	Suited	Suited	Not suited	Marginal	Marginal	Marginal	Marginal	Marginal
Farkleberry (winter huckleberry).	Not suited	Not suited	Not suited	Not suited	Suited	Suited	Not suited	Not suited	Not suited
Fescue (forage)	Suited	Suited	Suited	Marginal	Suited	Suited	Suited	Suited	Suited
Grapes (wild)	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Not suited	Not suited	Not suited
Greenbrier	Suited	Suited	Marginal	Not suited	Marginal	Suited	Marginal	Marginal	Marginal
Hackberry	Suited	Suited	Marginal	Marginal	Marginal	Marginal	Not suited	Not suited	Marginal

See footnotes at end of table.

in a lesser degree, to the fertility of the soils at the bottom of the pond. Most warm-water ponds need fertilizer to increase the food supply. Supplementary feed can be added. The kind and amount of fertilizer needed depends on the kind of soil at the bottom of the pond. If the soils are phosphatic, only nitrogen is needed. If the soils are nonphosphatic, nitrogen, phosphate, and potash should be added. Lime is needed in ponds constructed in areas on the Highland Rim. The pond basin should be limed before it fills with water.

To be suitable for rainbow trout, water must be at a temperature not higher than 70° F. There are many large springs in this county that can supply the kind of water needed for cold-water ponds. Such ponds should not be fertilized, but the fish need supplementary feeding.

Wildlife groups

The soils of the county have been placed in 10 groups on the basis of their capacity for production of food and cover for wildlife. These groups are described in the following pages. Table 5 rates the suitability of specified plants for the soils of each group. It also rates the suitability of each of these plants as food for birds and other wildlife that inhabit the county or that pass through while migrating.

WILDLIFE GROUP 1

Deep, loamy soils on bottom lands make up this group. These soils are well drained or moderately well drained. Nearly all of the areas are near or next to permanent or intermittent streams. The slope is dominantly less than 3 percent. These soils are high in available water capacity. They are friable to a depth of 40 inches and are easy to work. They can be used for row crops year after year. Yields are high, especially of summer annuals.

WILDLIFE GROUP 2

In this group are well-drained soils that have a medium-textured surface layer and subsoil. These soils have a high available water capacity. Their root zone is deep. They produce high yields of all common crops, and the response to management is extremely good. Few areas, however, have a gradient mild enough for the soils to be used year after year for cultivated crops. Slope is the main problem.

the wildlife groups and as food for wildlife

group 10, because the land types making up that group are so variable that each area must be studied individually]

Suitability of plants as food for—										
								Nongame birds		
Bob-white	Deer	Dove	Duck	Geese	Rabbit	Squirrel	Turkey	Fruit eaters [1]	Grain and seed eaters [2]	Nut and acorn eaters [3]
	Choice			Choice	Choice					
Fair		Choice							Fair	
Fair	Fair		Fair			Fair	Fair		Fair	Fair.
Fair	Fair	Fair	Choice	Choice	Fair	Choice	Choice		Fair	
		Choice	Choice	Choice					Fair	
Choice						Choice	Choice			Choice.
Choice	Fair					Choice	Choice	Choice		Choice.
Fair	Fair					Fair	Choice	Choice		
Fair							Fair			Fair.
Choice	Fair	Choice	Fair	Fair			Fair		Choice	
Choice	Fair	Choice	Choice	Fair	Choice		Choice		Choice	
Fair	Choice	Fair	Fair		Fair		Choice		Fair	
Choice	Fair					Choice	Fair	Choice		
	Choice		Choice	Choice		Choice	Choice			
Choice	Choice			Choice	Choice		Choice			
Choice	Choice	Choice	Choice	Choice	Choice	Choice	Choice		Choice	Choice.
Choice	Choice	Fair			Choice		Choice			
	Choice							Fair		
Choice	Fair				Fair	Fair	Choice	Choice		Choice.
Choice	Choice					Fair	Choice	Choice		Fair.
	Choice						Fair	Choice		
	Fair					Choice	Fair		Fair	
Fair	Fair					Fair	Fair	Fair		
	Fair			Fair	Fair		Fair			
	Choice					Fair	Choice	Choice		
	Choice				Choice		Fair	Fair		
Fair	Choice					Fair	Choice	Choice		

TABLE 5.—*Suitability of plants for the soils in the*

Kind of plant	Wildlife groups								
	1	2	3	4	5	6	7	8	9
Hawthorn	Suited	Marginal	Not suited	Not suited	Marginal	Marginal	Not suited	Not suited	Not suited
Hazelnut	Suited	Marginal	Not suited	Not suited	Not suited	Marginal	Marginal	Marginal	Suited
Hickory	Suited	Suited	Marginal	Marginal	Suited	Marginal	Marginal	Marginal	Not suited
Holly	Marginal	Marginal	Not suited	Not suited	Not suited	Marginal	Not suited	Not suited	Not suited
Honeysuckle	Suited	Suited	Not suited	Not suited	Marginal	Suited	Not suited	Not suited	Not suited
Huckleberry and blueberry.	Not suited	Not suited	Not suited	Not suited	Suited	Suited	Not suited	Not suited	Not suited
Japanese millet	Suited	Marginal	Marginal	Not suited	Marginal	Marginal	Suited	Suited	Suited
Johnsongrass	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Marginal	Marginal	Suited
Lespedeza, bicolor	Suited	Suited	Marginal	Marginal	Suited	Marginal	Not suited	Not suited	Not suited
Lespedeza, sericea	Suited	Suited	Marginal	Not suited	Suited	Marginal	Not suited	Not suited	Not suited
Lespedeza, wild	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited	Not suited	Not suited
Maple	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Suited	Suited	Suited
Milkpeas	Not suited	Not suited	Marginal	Marginal	Marginal	Suited	Not suited	Not suited	Not suited
Mulberry	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Not suited	Not suited	Not suited
Oak	Suited	Suited	Marginal	Marginal	Suited	Suited	Suited	Suited	Marginal
Oats	Suited	Suited	Marginal	Not suited	Marginal	Suited	Not suited	Not suited	Not suited
Partridgepea	Not suited	Suited	Marginal	Marginal	Suited	Suited	Not suited	Not suited	Not suited
Pea vine (winter peas).	Suited	Suited	Marginal	Not suited	Marginal	Suited	Suited	Not suited	Suited
Pecan	Suited	Suited	Marginal	Not suited	Not suited	Marginal	Not suited	Not suited	Not suited
Persimmon	Suited	Suited	Marginal	Not suited	Marginal	Marginal	Not suited	Not suited	Not suited
Pine	Suited	Suited	Marginal	Marginal	Suited	Suited	Marginal	Marginal	Marginal
Plum	Suited	Suited	Marginal	Not suited	Marginal	Suited	Not suited	Not suited	Marginal
Pokeberry	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited	Marginal	Not suited
Privet, common	Suited	Suited	Marginal	Marginal	Suited	Suited	Marginal	Marginal	Marginal
Pyracantha	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited	Not suited	Not suited
Ragweed, common	Suited	Suited	Marginal	Not suited	Marginal	Suited	Suited	Marginal	Marginal
Redcedar	Suited	Suited	Suited	Suited	Suited	Marginal	Not suited	Not suited	Not suited
Rescuegrass	Suited	Suited	Suited	Marginal	Marginal	Marginal	Not suited	Marginal	Marginal
Rice cutgrass	Suited	Suited	Not suited.	Not suited.	Not suited.	Not suited.	Suited	Not suited.	Suited
Rose, multiflora	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited.	Not suited.	Not suited.
Rye	Suited	Suited	Marginal	Not suited.	Marginal	Suited	Marginal	Not suited.	Not suited.
Ryegrass	Suited	Suited	Suited	Suited	Suited	Suited	Suited	Marginal	Marginal
Sassafras	Suited	Suited	Marginal	Marginal	Marginal	Marginal	Not suited.	Not suited.	Not suited.
Serviceberry	Suited	Suited	Marginal	Marginal	Suited	Suited	Not suited.	Not suited.	Not suited.
Smartweed	Suited	Not suited.	Not suited.	Not suited.	Not suited.	Not suited	Suited	Suited	Suited
Sorghum, grain [4,5]	Suited	Suited	Marginal	Not suited.	Marginal	Suited	Suited	Suited	Suited
Soybeans [4]	Suited	Suited	Marginal	Not suited.	Not suited.	Suited	Suited	Suited	Suited
Sudangrass	Suited	Suited	Marginal	Not suited.	Marginal	Suited	Suited	Marginal	Suited
Sumac	Suited	Suited	Suited	Marginal	Suited	Suited	Marginal	Marginal	Marginal
Sunflower	Suited	Suited	Suited	Marginal	Suited	Suited	Not suited.	Not suited.	Not suited.
Sweetgum	Suited	Suited	Not suited	Not suited	Not suited	Marginal	Suited	Suited	Suited
Tickclover	Suited	Suited	Suited	Marginal	Suited	Suited	Not suited	Not suited	Not suited
Vetch, hairy	Suited	Suited	Suited	Not suited	Marginal	Marginal	Marginal	Marginal	Marginal
Virginia creeper	Suited	Suited	Marginal	Not suited	Not suited	Marginal	Marginal	Suited	Marginal
Walnut	Suited	Suited	Suited	Marginal	Marginal	Not suited	Not suited	Not suited	Not suited
Wheat	Suited	Suited	Suited	Not suited	Marginal	Suited	Not suited	Not suited	Not suited
Yellow-poplar	Suited	Suited	Suited	Not suited	Suited	Marginal	Marginal	Marginal	Not suited

[1] Fruit eaters common in this county are bluebirds, catbirds, and mockingbirds.
[2] Grain and seed eaters common in the county are blackbirds, cardinals, meadowlarks, sparrows, and towhees.
[3] Nut and acorn eaters common in this county are bluejays, chickadees, grackles, and woodpeckers.
[4] If planted as a cultivated crop, the ratings apply only to those soils in capability classes I through IV.

wildlife groups and as food for wildlife—Continued

Suitability of plants as food for—										
Bob-white	Deer	Dove	Duck	Geese	Rabbit	Squirrel	Turkey	Nongame birds		
								Fruit eaters [1]	Grain and seed eaters [2]	Nut and acorn eaters [3]
	Fair					Fair	Fair	Fair		
						Choice				Choice.
	Fair					Choice	Fair			Choice.
	Fair							Fair		
	Choice							Choice		
Fair	Fair					Fair	Fair	Choice		
Choice		Choice	Choice		Choice				Choice	
Fair	Fair	Fair							Choice	
Choice	Choice				Fair	Fair				
					Fair					
	Fair				Fair					
	Choice					Fair	Fair			
Choice	Fair				Choice					
Choice	Fair					Choice	Choice	Choice		
Choice	Choice		Choice			Choice	Choice			Choice.
Choice	Choice	Fair	Fair	Choice	Choice	Choice	Choice		Choice	
Choice										
	Fair									
Choice	Fair					Choice	Choice			Choice.
	Fair					Fair	Fair	Fair		
Choice		Choice				Choice	Choice			Choice.
Choice	Fair					Choice		Fair		
Fair	Choice	Choice					Fair	Choice		
Fair	Fair							Choice		
Fair							Choice	Choice		
Choice	Fair	Choice							Choice	
	Fair							Choice		
	Choice			Choice	Choice		Choice			
			Choice	Fair					Choice	
							Fair	Choice		
		Fair	Fair	Fair	Fair	Choice	Choice		Fair	
Choice	Choice									
	Choice		Choice	Choice	Choice		Choice			
Fair	Choice					Fair	Fair	Choice		
	Fair					Fair		Choice		
			Choice	Fair					Fair	
Choice	Choice	Choice	Choice	Choice	Choice	Choice	Choice		Choice	
Fair	Choice	Fair	Choice	Fair	Fair		Choice			
Choice		Choice	Choice			Fair			Choice	
Fair	Choice				Fair		Fair	Choice		
Choice	Choice	Choice				Choice	Fair		Choice	Choice.
Choice	Fair	Choice				Fair	Choice			Choice.
Choice	Choice						Fair			
Choice	Choice	Fair			Fair		Fair			
	Fair						Fair	Choice		
						Choice				Choice.
Choice	Choice	Choice	Choice	Choice	Choice	Choice	Choice		Choice	
						Choice			Fair	

[1] Grain sorghum is a choice food of most grain-eating birds, but it also attracts blackbirds, cowbirds, sparrows, and other unwanted birds. In addition, grain sorghum rots quickly in humid climates. These two factors limit the suitability of grain sorghum as a food for wildlife.

WILDLIFE GROUP 3

Well-drained, dominantly sloping soils on uplands make up this group. These soils have a thin, silty surface layer and a plastic, clayey subsoil. The slope range is 2 to 20 percent. These soils are productive if used for grasses and clover. They are only fairly well suited or poorly suited to row crops, because of their slope and their clayey subsoil. They erode readily if cultivated.

WILDLIFE GROUP 4

The soils in this group are clayey. They are too rocky for cultivation, except that done with hand tools. Outcrops of limestone are numerous. The slopes are dominantly 10 to 30 percent. Although some areas are in pasture, most areas are in trees or bushes.

WILDLIFE GROUP 5

Cherty soils on hills and ridgetops make up this group. The slope is dominantly 10 to 25 percent, but there are a few areas where the slope is more than 25 percent and some where it is less than 10 percent. The gently sloping areas are on ridgetops and are generally small. These soils are droughty, especially on slopes facing south and west. They are low in natural fertility and are strongly acid. They are suited to perennials and to plants that grow best in spring when moisture is plentiful. Only the small, more nearly level patches on ridgetops are suited to frequent cultivation. The response to management is moderate, and yields of summer annuals are ordinarily medium or low. Much of the acreage is in forest.

WILDLIFE GROUP 6

The soils in this group have a fragipan at a depth of about 2 feet. Above the pan the soils are silty, friable, and easy to keep in good tilth, but the pan is dense and slowly permeable. The lower part of the subsoil is waterlogged during rainy seasons. The slope is dominantly 2 to 5 percent, but there are a few nearly level areas.

These soils are medium in available water capacity. They can be cultivated frequently and are suited to nearly all kinds of crops grown in the county. The response to management is good.

WILDLIFE GROUP 7

In this group are somewhat poorly drained and poorly drained soils on level bottom lands, generally in areas that are likely to be flooded for short periods in winter and spring. Although the water table is near the surface much of winter and spring, it may drop to a depth of 5 or 6 feet in summer and fall. These soils are medium textured to a depth of 20 inches or more. Their subsoil is moderately permeable.

Excess water limits the choice of crops. Summer annuals that do not require a long growing season produce good yields. Tall fescue and white clover grow well. Areas that are 3 acres or more in size are suitable for growing food for wild ducks. These areas need to be flooded when the plants are mature so that the ducks can feed.

WILDLIFE GROUP 8

In this group are poorly drained, gray soils in nearly level areas and depressions. They have a silty, friable surface layer and a silty or clayey, slowly permeable subsoil. In winter and spring these soils are commonly very wet, and water stands on the surface for short periods. In summer they dry out and are fairly droughty. They can be cultivated year after year, but without surface drainage only water-tolerant plants can be grown. Areas that are 3 acres or more in size are suitable for growing food for wild ducks. These areas need to be flooded when the plants are mature so that the ducks can feed.

WILDLIFE GROUP 9

Roellen silty clay loam is the only soil in this group. This is a black, poorly drained soil on nearly level bottom lands. The topmost 8 inches is medium textured, but the subsoil is clayey and slowly permeable. Most areas are likely to be flooded or ponded for short periods during winter and spring. Without surface drainage, only water-tolerant plants can be grown. Natural fertility is moderately high.

WILDLIFE GROUP 10

In this group are land types that are unsuitable for cultivation without major reclamation. This group is not listed in table 5, because the characteristics are so variable that each area must be studied individually before selecting plants suitable for revegetation.

Soils in Engineering[5]

Some soil properties are of special interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion-control structures, drainage systems, and sewage-disposal systems. The properties most important to engineers are permeability to water, shear strength, compaction characteristics, drainage, shrink-swell characteristics, grain size, plasticity, and reaction (pH). Also important are topography, water-holding capacity, and depth to bedrock.

Most of the information in this section is in tables. Estimates of some of the soil properties significant in engineering are given in table 6. Interpretations of some of the properties that affect engineering uses of the soils are given in table 7.

Information in this report can be used to—

1. Make studies that will aid in selecting and developing sites for industrial, business, residential, and recreational uses.
2. Make preliminary estimates of the engineering properties of soils for use in planning agricultural drainage systems, farm ponds, irrigation systems, and diversion terraces.
3. Make preliminary evaluations that will aid in selecting locations for highways and airports and in planning detailed surveys of the soils at the site.
4. Locate materials needed for specific construction purposes.
5. Locate sites suitable for use as filter fields for septic tanks.
6. Correlate performance of engineering structures with soil mapping units to develop information that will be useful in designing and maintaining such structures.

[5] DAVID L. ROYSTER, soils engineer, Materials and Testing Division, Tennessee State Highway Department, assisted with preparation of this section.

7. Determine the suitability of soil mapping units for cross-country movement of vehicles and construction equipment.
8. Supplement information obtained from published maps, reports, and aerial photographs for the purpose of making maps and reports that can be used readily by engineers.

With the use of the soil map for identification, the engineering interpretations reported here can be useful for many purposes. It should be emphasized that they do not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads or excavations deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Some of the terms used in this publication have a special meaning to soil scientists and a different meaning to engineers. The Glossary at the back of the report defines many such terms as they are used in soil science.

Engineering classification systems

Most highway engineers classify soil materials according to the system used by the American Association of State Highway Officials (AASHO) (*1*). In this system soil materials are classified into seven principal groups, designated A–1 through A–7. The best materials for engineering purposes (gravelly soils of high bearing capacity) are classified as A–1, and the poorest (clayey soils having low strength when wet) are classified as A–7. Within each group, the relative engineering value of the soils is indicated by a group index number. Group indexes range from 0 for the best material to 20 for the poorest.

Some engineers prefer the Unified soil classification system (*15*), which was developed by the Corps of Engineers, U.S. Army. In this system, soil materials are identified as coarse grained, fine grained, and highly organic, and symbols are used to identify each group. For example, soils that consist primarily of fine-grained material, either plastic or nonplastic, are identified by the symbols ML and CL if the liquid limit is low and by MH and CH if the liquid limit is high.

Engineering properties of the soils

Table 6 gives, for each soil series and land type some of the soil characteristics significant in engineering and the engineering classification of the soil material in the principal horizons.

Permeability is estimated for uncompacted soil material. The estimates are based on the structure, texture, and consistence of the soil and on field observations and limited laboratory data.

Available water capacity is an approximation of the amount of capillary water a soil holds when it is wet to field capacity. It is the amount of water held in the soil between about ⅓ atmosphere of tension and 15 atmospheres of tension. The estimates of available water capacity for most of the soils is based on laboratory data. For a few, the estimates are based on data for similar soils.

The shrink-swell potential indicates the change in volume to be expected when the moisture content changes. It is estimated primarily on the basis of the amount and kind of clay in a soil. In general, a soil classified as CH and A–7 has a high shrink-swell potential. Soils with a low shrink-swell potential are clean sands and gravels (single-grain) and soils having a small amount of nonplastic to slightly plastic fine material.

Engineering interpretations

Table 7 lists, for each soil series and land type, suitability ratings for engineering uses and the soil characteristics that most significantly affect highway construction and soil and water conservation. These characteristics are generally not apparent to an engineer unless he has access to the results of a field investigation.

In selecting locations for highways, an engineer needs to know the depth to bedrock and the kind of rock, so that he can ascertain how difficult excavation will be. He investigates the likelihood of slides and of seepage along or through the bedrock. He considers the presence of poor material within or slightly below the subgrade. For example, a layer of highly plastic clay impedes internal drainage and provides a poor foundation for roads. In some places the layer of clay can be cut out before pavement is laid. In low, flat, or poorly drained areas, where removal of the clay is not feasible, an embankment is needed so that the pavement can be laid well above the clay layer. Poor drainage, a high water table, and flooding also make embankments necessary. Interceptor ditches or underdrains are needed where there is surface seepage, which is common in deposits of local alluvium at the base of slopes. Slumping or sliding may result from seepage in the backslopes of cuts. Boulders, flagstones, and stones are likely to cause grading problems.

In most of the county earthwork is difficult during prolonged wet periods. It is possible to excavate, haul, and compact the better drained, coarse-grained soils, but silty and clayey soils may absorb so much water during wet periods that they cannot readily be drained to the moisture content most favorable for proper compaction.

The materials most desirable as road fill are generally coarse grained and easily drained, but such materials are scarce in this county. The cherty soils of the Fullerton, Bodine, and Dellrose series, which occur throughout the county on high hills, are the best sources, but soils in the Greendale, Staser, Lynnville, and Humphreys series are fair to good.

Chert gravel can be used economically for secondary and county roads, but ordinarily it is not durable enough to be used in concrete structures or for base materials in primary roads. Crushed limestone is much more satisfactory, and limestone is plentiful in the central part of the county. On many soils chert can be used as a subbase under the crushed limestone, to reduce the cost. There are no known sources of sand in Giles County.

The rating of the soils as a source of topsoil generally refers to the uppermost 3 feet of the soil, which consists of a mixture of the original surface layer and the subsoil. The original surface layer of most of the soils is not more than 7 inches thick, and skimming off this thin layer is not practical for the purpose of obtaining topsoil.

Suitability of the soils for construction of farm ponds is affected by permeable substrata, cavernous bedrock, and insufficient embankment material. Stored water may be lost if ponds are constructed on soils that have a permeable substratum or that are underlain by cavernous bedrock. In soils that are shallow over bedrock only a small amount

TABLE 6.—*Estimated*

Soil series and map symbols	Depth to bedrock	Depth from surface	Classification	
			USDA texture	Unified
	Feet	*Inches*		
Armour (ArA, ArB, ArC2).	5 to 15	0 to 8	Silt loam	ML or CL
		8 to 50	Silty clay loam	CL
		50 to 100	Cherty silty clay loam or clay	CL or MH
Ashwood (AsC, AsD).	2 to 4	0 to 6	Silty clay loam	CL or ML
		6 to 24	Clay	MH
Bodine (BoD, BoF).	2 to 25	0 to 20	Cherty silt loam	GM or ML
		20 to 60	Coarse cherty silt loam	GM or GC
Braxton (BrB2, BrC2, BrD2).	5 to 10	0 to 7	Cherty silt loam	ML or CL
		7 to 24	Cherty silty clay loam	CL or MH
		24 to 72	Cherty clay or clay	MH
Braxton (BsC3, BsD3).	4 to 10	0 to 18	Cherty silty clay loam	CL or MH
		18 to 60	Clay or cherty clay	MH
Braxton (BtC3, BtD3).	4 to 10	0 to 20	Silty clay loam	CL
		20 to 60	Clay	MH
Culleoka (CuC2, CuC3, CuD2, CuD3, CuE, CuE3).	4 to 15	0 to 10	Loam	ML
		10 to 40	Clay loam	ML or CL
		40 to 60	Clay loam	ML or CL
Culleoka (CyE).	3 to 10	0 to 12	Flaggy loam	ML
		12 to 32	Flaggy clay loam	ML
		32 to 50	Flaggy clay loam	GC or ML
Dellrose (DeB, DeC, DeC3, DeD, DeD3, DeE, DeE3, DeF).	4 to 15	0 to 12	Cherty silt loam	ML
		12 to 60	Cherty silty clay loam	GM or CL
		60 to 80	Cherty silty clay loam or clay	MH
Dellrose (DID, DIF).	4 to 15	0 to 12	Coarse cherty silt loam	GM or ML
		12 to 60	Coarse cherty silty clay loam	GM or CL
		60 to 80	Coarse cherty silty clay loam or clay.	GM or MH
Dickson (DnB).	6 to 25	0 to 8	Silt loam	ML
		8 to 25	Silty clay loam	ML or CL
		25 to 40	Silty clay loam	ML or CL
		40 to 72	Cherty silty clay	MH or CH
Donerail (DoB).	4 to 10	0 to 7	Silt loam	ML or CL
		7 to 24	Silty clay loam	CL or MH
		24 to 60	Clay	MH
Dowellton (Dw).	3 to 10	0 to 8	Silt loam	ML or CL
		8 to 20	Silty clay loam	MH or CH
		20 to 60	Clay	MH or CH
Etowah (EtC, EtD).	4 to 10	0 to 10	Cherty silt loam	ML or CL
		10 to 40	Cherty silty clay loam	ML or CL
		40 to 72	Cherty silty clay	MH
Fullerton (FaB, FaC, FaD, FaE, FaF).	6 to 25	0 to 8	Cherty silt loam	ML or CL
		8 to 20	Cherty silty clay loam	CL or MH
		20 to 100	Cherty clay	MH or CH
Fullerton (FcC3, FcD3, FcE3).	6 to 25	0 to 15	Cherty silty clay loam	GM or CL
		15 to 100	Cherty clay	MH or CH
Godwin (Go).	3 to 10	0 to 20	Silt loam	ML or CL
		20 to 72	Silty clay loam or clay	MH
Greendale (Gr).	4 to 10	0 to 30	Cherty silt loam	ML
		30 to 48	Cherty silty clay loam	GM or ML

See footnotes at end of table.

properties of the soils

Classification—Continued	Percentage passing sieve—			Permeability	Available water capacity	Reaction [1]	Shrink-swell potential
AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A–4	95 to 100	90 to 100	85 to 90	0. 63 to 2. 0	0. 20	5. 1 to 6. 0	Low.
A–6	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 18	5. 1 to 6. 0	Moderate.
A–6 or A–7	60 to 100	60 to 95	60 to 90	0. 63 to 2. 0	. 12	5. 1 to 5. 5	Moderate.
A–6	95 to 100	90 to 100	85 to 95	0. 2 to 0. 63	. 15	6. 1 to 7. 3	Moderate.
A–7	95 to 100	90 to 100	85 to 95	<0. 2	. 13	6. 1 to 7. 3	High.
A–2 or A–4	50 to 70	45 to 65	35 to 60	2. 0 to 6. 3	. 10	4. 5 to 5. 0	Low.
A–2 or A–4	25 to 50	25 to 45	20 to 40	2. 0 to 6. 3	. 10	4. 5 to 5. 0	Low.
A–4	70 to 85	65 to 80	55 to 75	0. 63 to 2. 0	. 15	5. 1 to 5. 5	Low.
A–6 or A–7	80 to 90	75 to 90	65 to 85	0. 2 to 0. 63	. 13	4. 5 to 5. 5	Moderate.
A–7	80 to 95	75 to 95	70 to 95	0. 2 to 0. 63	. 11	4. 5 to 5. 5	Moderate.
A–6 or A–7	65 to 85	60 to 75	55 to 70	0. 2 to 0. 63	. 13	5. 1 to 5. 5	Moderate.
A–7	85 to 100	80 to 95	75 to 95	0. 2 to 0. 63	. 11	4. 5 to 5. 5	Moderate.
A–6 or A–7	90 to 100	85 to 100	75 to 95	0. 2 to 0. 63	. 17	5. 1 to 5. 5	Moderate.
A–7	85 to 100	85 to 100	80 to 95	0. 2 to 0. 63	. 15	4. 5 to 5. 5	Moderate.
A–4	90 to 100	85 to 100	55 to 75	0. 63 to 2. 0	. 19	5. 1 to 6. 0	Low.
A–4	90 to 100	80 to 95	60 to 80	0. 63 to 2. 0	. 18	5. 1 to 5. 5	Moderate.
A–4	85 to 100	80 to 100	70 to 85	2. 0 to 6. 3	. 12	5. 1 to 5. 5	Moderate.
A–4	70 to 85	65 to 80	50 to 75	0. 63 to 2. 0	. 14	5. 1 to 6. 0	Low.
A–4	70 to 85	65 to 80	60 to 75	2. 0 to 6. 3	. 14	5. 1 to 5. 5	Low.
A–2 or A–4	40 to 65	35 to 60	25 to 50	2. 0 to 6. 3	. 11	5. 1 to 5. 5	Low.
A–4	70 to 85	65 to 80	50 to 70	0. 63 to 2. 0	. 15	5. 1 to 6. 0	Low.
A–4 or A–6	60 to 90	55 to 85	45 to 75	0. 63 to 2. 0	. 14	5. 1 to 5. 5	Moderate.
A–7	65 to 100	55 to 90	50 to 90	0. 63 to 2. 0	. 12	5. 1 to 5. 5	Moderate.
A–2 or A–4	65 to 80	55 to 80	30 to 70	0. 63 to 2. 0	. 13	5. 1 to 5. 5	Low.
A–4 or A–6	55 to 85	50 to 80	45 to 75	0. 63 to 2. 0	. 13	5. 1 to 5. 5	Low.
A–4 or A–7	50 to 95	45 to 95	40 to 90	0. 63 to 2. 0	. 11	5. 1 to 5. 5	Moderate.
A–4	95 to 100	90 to 100	75 to 90	0. 63 to 2. 0	. 20	4. 5 to 5. 0	Low.
A–4 or A–6	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 18	4. 5 to 5. 0	Low.
A–4 or A–6	95 to 100	95 to 100	80 to 90	<0. 2	. 13	4. 5 to 5. 0	Moderate.
A–7	75 to 95	70 to 85	65 to 90	0. 63 to 2. 0	. 12	4. 5 to 5. 0	Moderate.
A–4	95 to 100	90 to 100	80 to 95	0. 63 to 2. 0	. 20	5. 1 to 6. 0	Low.
A–6	95 to 100	90 to 100	85 to 95	0. 2 to 0. 63	. 15	5. 1 to 6. 0	Moderate.
A–7	90 to 100	85 to 100	75 to 95	<0. 2	. 14	5. 1 to 6. 0	Moderate.
A–4 or A–6	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 18	5. 5 to 6. 0	Low.
A–7	95 to 100	90 to 100	85 to 95	0. 2 to 0. 63	. 15	5. 5 to 7. 3	High.
A–7	95 to 100	90 to 100	85 to 95	<0. 2	. 13	6. 0 to 7. 3	High.
A–4	70 to 85	60 to 80	55 to 70	0. 63 to 2. 0	. 15	5. 1 to 5. 5	Low.
A–6	70 to 85	65 to 80	55 to 75	0. 63 to 2. 0	. 13	5. 1 to 5. 5	Low.
A–7	80 to 95	75 to 90	70 to 85	0. 63 to 2. 0	. 11	5. 1 to 5. 5	Moderate.
A–4	65 to 85	60 to 85	55 to 80	0. 63 to 2. 0	. 15	4. 5 to 5. 5	Low.
A–6 or A–7	80 to 90	75 to 90	70 to 85	0. 63 to 2. 0	. 13	4. 5 to 5. 0	Moderate.
A–7	60 to 90	55 to 85	50 to 80	0. 63 to 2. 0	. 11	4. 5 to 5. 0	Moderate.
A–4 or A–6	65 to 80	55 to 75	45 to 65	0. 63 to 2. 0	. 12	4. 5 to 5. 5	Moderate.
A–7	60 to 90	55 to 85	50 to 80	0. 63 to 2. 0	. 11	4. 5 to 5. 0	Moderate.
A–4 or A–6	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 19	6. 1 to 6. 5	Low.
A–7	90 to 100	85 to 100	80 to 95	0. 2 to 0. 63	. 15	6. 6 to 7. 3	Moderate.
A–4	65 to 85	55 to 80	50 to 75	2. 0 to 6. 3	. 14	5. 1 to 5. 5	Low.
A–4	55 to 85	40 to 80	40 to 75	2. 0 to 6. 3	. 12	5. 1 to 5. 5	Low.

TABLE 6.—*Estimated properties*

Soil series and map symbols	Depth to bedrock	Depth from surface	Classification	
			USDA texture	Unified
	Feet	*Inches*		
Greendale (Gs).	4 to 10	0 to 30	Silt loam	ML or CL
		30 to 60	Silty clay loam or cherty silty clay loam.	CL
Gullied land (Gu).	0 to 15	(2)	(2)	(2)
Guthrie (Gw).	6 to 25	0 to 24	Silt loam	ML or CL
		24 to 40	Silty clay loam	CL
Hampshire (HaC2, HaD2).	4 to 10	0 to 7	Silt loam	CL
		7 to 40	Clay	CH or MH
Humphreys (HuB, HuC).	4 to 10	0 to 12	Cherty silt loam	ML
		12 to 48	Cherty silty clay loam	ML
		48 to 72	Cherty silty clay loam or cherty clay.	CL or MH
Inman (InD3).	2 to 4	0 to 24	Silty clay or clay	MH
Lanton (La).	3 to 10	0 to 28	Silt loam or silty clay loam	ML or CL
		28 to 60	Silty clay loam or clay	CL or MH
Lee (Le).	4 to 10	0 to 24	Silt loam	ML
		24 to 48	Cherty silt loam or cherty silty clay loam.	GM, ML, or CL
Lobelville (Lh).	4 to 10	0 to 20	Cherty silt loam	ML
		20 to 60	Cherty silt loam or cherty silty clay loam.	GM, ML, or CL
Lobelville (Lo).	4 to 10	0 to 20	Silt loam	ML
		20 to 60	Silt loam or cherty silt loam	ML or CL
Lynnville (Lt).	4 to 10	0 to 20	Cherty silt loam	ML
		20 to 50	Cherty silt loam or cherty silty clay loam.	GM, ML, or CL
Lynnville (Ly).	4 to 10	0 to 24	Silt loam	ML
		24 to 60	Silt loam or silty clay loam	ML or CL
Made land (Ma).	(2)	(2)	(2)	(2)
Maury (MbB, MbC2, MbD2).	4 to 15	0 to 7	Silt loam	ML or CL
		7 to 30	Silty clay loam	MH
		30 to 72	Clay	MH
Mercer (McA, McB, McB2).	4 to 12	0 to 10	Silt loam	ML or CL
		10 to 24	Silty clay loam	CL
		24 to 48	Silty clay loam	ML or CL
		48 to 80	Silty clay loam, clay, gravelly silty clay loam.	CL, MH, or GC
Mimosa (MmC2, MmD, MmE).	3 to 8	0 to 9	Cherty silt loam	ML
		9 to 72	Clay	MH
Mimosa (MnD3, MnE3).	2 to 8	0 to 6	Cherty silty clay	CL or MH
		6 to 70	Clay	MH
Mimosa (MoC2, MoD2).	2 to 8	0 to 6	Silt loam	ML or CL
		6 to 72	Clay	MH
Mimosa (MpD3).	2 to 8	0 to 60	Clay or silty clay	MH
Mimosa-Ashwood (MsD, MsF).	0 to 6	0 to 30	Clay	MH

See footnotes at end of table.

of the soils—Continued

Classification—Continued	Percentage passing sieve—			Permeability	Available water capacity	Reaction [1]	Shrink-swell potential
AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
A–4	90 to 100	85 to 100	80 to 95	0.63 to 2.0	.20	5.1 to 5.5	Low.
A–4 or A–6	80 to 100	75 to 95	70 to 95	0.63 to 2.0	.15	5.1 to 5.5	Low.
[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2].
A–4	95 to 100	90 to 100	85 to 95	0.2 to 0.63	.18	4.5 to 5.5	Low.
A–6	95 to 100	90 to 100	85 to 95	<0.2	.14	4.5 to 5.0	Low.
A–6	95 to 100	90 to 100	85 to 95	0.63 to 2.0	.18	4.5 to 5.5	Low.
A–7	90 to 100	90 to 100	80 to 95	0.2 to 0.63	.14	4.5 to 5.0	Moderate.
A–4	75 to 90	65 to 80	60 to 75	2.0 to 6.3	.15	5.1 to 5.5	Low.
A–4	65 to 90	55 to 80	50 to 75	0.63 to 2.0	.13	5.1 to 5.5	Low.
A–4 or A–7	60 to 90	55 to 80	50 to 75	0.63 to 2.0	.11	5.1 to 5.5	Moderate.
A–7	75 to 95	70 to 90	60 to 80	<0.2	.12	5.1 to 6.5	Moderate.
A–4 or A–6	95 to 100	90 to 100	85 to 95	0.63 to 2.0	.17	6.1 to 7.3	Low.
A–7	90 to 100	85 to 100	80 to 95	0.2 to 0.63	.15	6.1 to 7.3	Moderate.
A–4	95 to 100	90 to 100	80 to 90	0.63 to 2.0	.18	5.1 to 5.5	Low.
A–4 or A–6	55 to 75	45 to 70	40 to 85	0.63 to 2.0	.14	4.5 to 5.5	Moderate.
A–4	65 to 90	60 to 85	50 to 75	0.63 to 6.3	.15	5.1 to 5.5	Low.
A–4	65 to 90	50 to 75	40 to 65	0.63 to 6.3	.14	4.5 to 5.5	Low.
A–4	95 to 100	90 to 100	75 to 90	0.63 to 6.3	.20	5.1 to 5.5	Low.
A–4 or A–6	70 to 95	65 to 95	60 to 85	0.63 to 6.3	.15	4.5 to 5.5	Low.
A–4	60 to 80	55 to 75	50 to 75	0.63 to 2.0	.15	5.6 to 7.3	Low.
A–4 or A–6	60 to 95	50 to 95	40 to 85	0.63 to 2.0	.15	5.6 to 7.3	Low.
A–4	95 to 100	90 to 100	75 to 85	0.63 to 2.0	.20	5.6 to 7.3	Low.
A–4, A–6, or A–7	90 to 100	85 to 100	75 to 85	0.63 to 2.0	.18	5.6 to 7.3	Low.
[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2].
A–4 or A–6	95 to 100	90 to 100	80 to 95	0.63 to 2.0	.20	5.1 to 6.0	Low.
A–7	95 to 100	95 to 100	85 to 95	0.63 to 2.0	.17	5.1 to 5.5	Moderate.
A–7	80 to 100	80 to 100	70 to 95	0.2 to 0.63	.15	5.1 to 5.5	Moderate.
A–4	90 to 100	85 to 100	75 to 90	0.63 to 2.0	.20	5.1 to 5.5	Low.
A–6	95 to 100	85 to 100	80 to 90	0.63 to 2.0	.18	5.1 to 5.5	Low.
A–4 or A–6	85 to 100	80 to 100	70 to 85	<0.2	.13	5.1 to 5.5	Low.
A–2, A–4, A–6, or A–7	45 to 100	40 to 100	30 to 95	0.2 to 2.0	.12	5.1 to 5.5	Moderate.
A–4	70 to 90	60 to 80	50 to 75	0.63 to 2.0	.15	5.1 to 5.5	Low
A–7	90 to 100	85 to 100	80 to 95	<0.2	.13	5.1 to 6.5	Moderate.
A–7	70 to 85	60 to 80	50 to 75	0.2 to 0.63	.13	5.1 to 5.5	Moderate.
A–7	90 to 100	85 to 100	80 to 95	<0.2	.13	5.1 to 5.5	Moderate.
A–6	95 to 100	90 to 100	80 to 95	0.63 to 2.0	.18	5.1 to 5.5	Low
A–7	95 to 100	95 to 100	85 to 100	<0.2	.14	5.1 to 6.5	Moderate.
A–7	95 to 100	90 to 100	85 to 95	<0.2	.14	5.1 to 6.5	Moderate.
A–7	90 to 100	90 to 100	80 to 95	<0.2	.13	5.1 to 6.5	Moderate.

TABLE 6.—*Estimated properties*

Soil series and map symbols	Depth to bedrock	Depth from surface	Classification	
			USDA texture	Unified
	Feet	*Inches*		
Mine pits and dumps (Mt).	(2)	(2)	(2)	(2)
Mined land, reclaimed (Mu).	(2)	(2)	(2)	(2)
Mountview (MvB, MvC, MvC3).	5 to 25	0 to 12	Cherty silt loam	ML
		12 to 30	Silt loam	ML or CL
		30 to 70	Cherty silty clay loam or cherty clay.	GC, CL, or MH
Mountview (MwB, MwC2).	6 to 25	0 to 10	Silt loam	ML
		10 to 36	Silt loam	CL or ML
		36 to 72	Cherty clay	MH
Newark (Ne)	4 to 10	0 to 30	Silt loam	ML
		30 to 72	Silty clay loam or silty clay	CL
Pickwick (PcB, PcC2, PcC3).	6 to 25	0 to 8	Silt loam	ML or CL
		8 to 40	Silty clay loam	CL
		40 to 90	Cherty clay	MH or CL
Rockland (Rl).	(2)	(2)	(2)	(2)
Roellen (Ro).	2½ to 7	0 to 12	Silty clay loam	ML or MH
		12 to 60	Clay	MH or CH
Settling basins (Se).	(2)	(2)	(2)	(2)
Staser (Sr).	4 to 10	0 to 60	Cherty silt loam	ML
Staser (Ss).	4 to 10	0 to 60	Silt loam	ML or CL
Stiversville (StC3).	3 to 10	0 to 8	Silt loam	ML or CL
		8 to 48	Silty clay loam	CL
Taft (Ta).	6 to 25	0 to 8	Silt loam	ML or CL
		8 to 15	Silt loam	CL
		15 to 36	Silty clay loam	CL
		36 to 72	Silty clay	CL
Talbott (TbB2, TbC2).	3 to 6	0 to 8	Silt loam	ML or CL
		8 to 66	Clay	MH or CH
Talbott (TcC3).	2 to 6	0 to 60	Silty clay or clay	CH or MH
Talbott (TrD).	0 to 6	0 to 30	Clay	CH or MH
Tupelo (Tu).	3 to 10	0 to 9	Silt loam	ML or CL
		9 to 24	Silty clay or clay	MH
		24 to 80	Clay	MH
Woolper (Wo).	3 to 8	0 to 8	Silty clay loam	CL or MH
		8 to 24	Silty clay	MH
		24 to 60	Clay	MH

[1] Without addition of lime.
[2] All properties variable.

of the soils—Continued

Classification—Continued	Percentage passing sieve—			Permeability	Available water capacity	Reaction [1]	Shrink-swell potential
AASHO	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)				
				Inches per hour	*Inches per inch of soil*	*pH*	
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
A–4	65 to 85	60 to 75	50 to 65	0. 63 to 2. 0	. 15	5. 1 to 5. 5	Low.
A–6	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 17	4. 5 to 5. 5	Low.
A–2, A–4, or A–7	45 to 75	35 to 65	30 to 60	0. 63 to 6. 3	. 11	4. 5 to 5. 5	Moderate.
A–4	95 to 100	90 to 100	85 to 95	0. 63 to 2. 0	. 20	5. 1 to 5. 5	Low.
A–6	95 to 100	95 to 100	85 to 95	0. 63 to 2. 0	. 17	4. 5 to 5. 5	Moderate.
A–7	75 to 90	65 to 85	60 to 85	0. 63 to 2. 0	. 12	4. 5 to 5. 5	Moderate.
A–4	95 to 100	90 to 100	85 to 95	0. 63 to 6. 3	. 17	5. 6 to 7. 3	Low.
A–6 or A–7	80 to 100	75 to 100	65 to 90	0. 2 to 2. 0	. 14	5. 6 to 7. 3	Moderate.
A–4	95 to 100	95 to 100	85 to 95	0. 63 to 2. 0	. 20	5. 1 to 5. 5	Low.
A–6 or A–7	95 to 100	95 to 100	85 to 95	0. 63 to 2. 0	. 16	4. 5 to 5. 0	Moderate.
A–7	75 to 90	60 to 80	55 to 75	0. 63 to 2. 0	. 13	4. 5 to 5. 0	Moderate.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
A–7	95 to 100	95 to 100	85 to 95	0. 2 to 0. 63	. 15	6. 1 to 7. 3	Moderate.
A–7	95 to 100	95 to 100	80 to 95	0. 2 to 0. 63	. 14	6. 6 to 7. 3	High.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
A–4	65 to 90	55 to 85	50 to 75	2. 0 to 6. 3	. 15	5.6 to 7.3	Low.
A–4	90 to 100	85 to 95	75 to 90	0. 63 to 2. 0	. 20	5.6 to 7.3	Low.
A–4	90 to 100	80 to 100	75 to 90	0. 63 to 2. 0	. 18	4.5 to 5.0	Low.
A–6	85 to 100	75 to 95	65 to 85	0. 63 to 2. 0	. 16	4.5 to 5.0	Moderate.
A–4	95 to 100	90 to 100	80 to 95	0. 63 to 2. 0	. 20	4.5 to 5.0	Low.
A–4 or A–6	95 to 100	90 to 100	80 to 95	0. 2 to 0. 63	. 18	4.5 to 5.0	Low.
A–6	95 to 100	85 to 100	80 to 95	<0. 2	. 13	4.5 to 5.0	Low.
A–6 or A–7	95 to 100	85 to 100	70 to 90	0. 2 to 0. 63	. 13	4.5 to 5.0	Moderate.
A–6	95 to 100	90 to 100	80 to 90	0. 2 to 0. 63	. 17	5.1 to 5.5	Low.
A–7	95 to 100	90 to 100	80 to 90	0. 2 to 0. 63	. 13	4.5 to 5.5	Moderate.
A–7	95 to 100	95 to 100	90 to 100	0. 2 to 0. 63	. 13	4.5 to 5.5	Moderate.
A–7	95 to 100	90 to 100	85 to 95	0. 2 to 0. 63	. 13	5.1 to 6.0	Moderate.
A–4 or A–6	95 to 100	95 to 100	85 to 95	0. 63 to 2. 0	. 18	5.1 to 6.0	Low.
A–7	95 to 100	95 to 100	90 to 100	0. 2 to 0. 63	. 14	5.1 to 6.0	Moderate.
A–7	95 to 100	95 to 100	90 to 100	<0. 2	. 13	5.5 to 6.5	Moderate.
A–6 or A–7	95 to 100	90 to 100	85 to 100	0. 63 to 2. 0	. 17	5.6 to 7.3	Low.
A–7	95 to 100	85 to 100	80 to 95	0. 2 to 0. 63	. 16	5.6 to 7.3	Moderate.
A–7	95 to 100	95 to 100	80 to 95	<0. 2	. 14	5.6 to 7.3	Moderate.

TABLE 7—*Engineering*

Soil series and map symbols	Suitability as a source of—		Soil features affecting engineering practices	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Armour (ArA, ArB, ArC2)	Good	Fair	Features favorable	Possibility of excessive seepage through permeable subsoil.
Ashwood (AsC, AsD)	Poor	Poor	Fairly high shrink-swell potential; limestone bedrock at a depth of 2 to 4 feet.	Bedrock at a depth of 2 to 4 feet; limestone is cavernous in places.
Bodine (BoD, BoF)	Not suited	Good	Very steep slopes; much angular chert; bedrock at a depth of 2 feet in places.	Excessive seepage through substratum.
Braxton (BrB2, BrC2, BrD2, BsC3, BsD3, BtC3, BtD3).	Poor	Fair	Outcrops of limestone bedrock in places.	Limestone bedrock is cavernous in places; shallow over bedrock in places.
Culleoka (CuC2, CuC3, CuD2, CuD3, CuE, CuE3, CyE).	Fair to good	Good	Steep slopes; subject to sliding in cut slopes because 2 to 6 feet of creep material overlies clayey soil.	Rapidly permeable substratum; flagstones in subsoil.
Dellrose (DeB, DeC, DeC3, DeD, DeD3, DeE, DeE3, DeF, DID, DIF).	Fair	Good	Steep slopes; subject to sliding in cut slopes because 2 to 10 feet of creep material overlies clayey soil.	Underlying limestone is cavernous in places; seepage along underlying clayey residuum.
Dickson (DnB)	Fair	Poor	Silty above fragipan; perched water table in wet periods.	Fragipan at a depth of 18 to 30 inches; possible seepage in cherty clay below pan.
Donerail (DoB)	Poor	Poor	Limestone bedrock at a depth of 4 to 10 feet; fine-textured subsoil; high water table in winter.	Limestone bedrock is cavernous in places.
Dowellton (Dw)	Poor	Poor	Very fine textured material; limestone bedrock at a depth of 3 to 10 feet; water table at surface in winter.	Limestone bedrock is cavernous in places.
Etowah (EtC, EtD)	Fair to good	Fair to good	Features favorable	Limestone bedrock is cavernous in places.
Fullerton (FaB, FaC, FaD, FaE, FaF, FcC3, FcD3, FcE3).	Poor	Good	Steep slopes; much angular chert; bedrock at a depth of 6 to 25 feet.	Excessive seepage through permeable substratum.
Godwin (Go)	Poor to fair	Poor to fair	Seasonal high water table; slowly permeable, clayey subsoil; flooding.	Underlying limestone is cavernous in places.
Greendale (Gr, Gs)	Good to fair	Fair to good	Seasonal high water table and seepage at a depth of 18 to 24 inches in places; flooding.	Excessive seepage in most places because subsoil and substratum are permeable.
Gullied land (Gu)	Poor	Poor to fair	Shallow over bedrock; possible slippage in cut slopes.	Shallow over bedrock and cavernous in places; excessive silting.
Guthrie (Gw)	Poor	Poor	Underlain by fragipan at a depth of 15 to 30 inches; ponding in depressions; poor drainage.	Very slowly permeable; wet most of the time.

See footnote at end of table.

interpretations

Soil features affecting engineering practices—Continued				
Farm ponds—Continued	Agricultural drainage	Irrigation	Terraces and diversions [1]	Limitations for disposal fields for septic tank systems
Embankment				
Fair to good stability	Good natural drainage	Well suited	Features favorable	Slight.
Clayey texture; poor stability; hard to compact.	Good natural drainage	Low available water capacity and shallow root zone.	Shallow over bedrock, which crops out in places; clayey subsoil.	Severe: shallow over bedrock; slow permeability in subsoil.
Fair to good stability	Good natural drainage	Low available water capacity and rapid permeability; steep slopes.	Shallow over cherty limestone bedrock; steep slopes.	Slight.
Fair to good stability	Good natural drainage	Moderate available water capacity.	Outcrops of limestone bedrock in places; clayey subsoil.	Moderate: shallow over bedrock in places; clayey subsoil.
Good to fair stability	Good natural drainage	Predominantly steep slopes.	Features favorable	Slight.
Good stability	Good natural drainage	Predominantly steep slopes.	Features favorable	Slight, but slope is too steep for homesites in most places.
Poor to fair stability	Perched water table above fragipan in wet periods.	Fragipan limits root zone to upper 2 feet.	Features favorable	Severe: very slowly permeable fragipan at a depth of 18 to 30 inches.
Fair to poor stability	Perched water table above compacted, clayey subsoil in long wet periods.	Compacted, clayey subsoil limits root zone.	Features favorable	Severe: very slowly permeable subsoil; occasional flooding.
Very clayey material; difficult to compact.	Slowly permeable, clayey subsoil.	Poor drainage; low available water capacity.	Nearly level; clayey subsoil.	Severe: very slowly permeable, clayey subsoil; poor drainage.
Fair to good stability	Good natural drainage	Medium available water capacity.	Features favorable	Slight.
Fair to good stability	Good natural drainage	Medium available water capacity.	Features favorable	Slight.
Fair to poor stability	Slowly permeable subsoil; flooding.	Well suited	Level to nearly level	Severe: flooding; seasonal high water table.
Fair to good stability	Good natural drainage	Chert in places causes rapid permeability and reduces available water capacity.	Level to nearly level; in depressions and narrow, V-shaped valleys.	Moderate: flooding; seasonal high water table.
Variable soil material	Good natural drainage	Not suited	Dissected by network of gullies.	Severe: bedrock crops out in places; slowly permeable soil in places.
Mostly silt; fair to poor stability.	Fragipan at a depth of 15 to 30 inches; slowly permeable subsoil.	Poor drainage	Level to nearly level	Severe: ponding; high water table; slowly permeable subsoil.

TABLE 7—*Engineering*

Soil series and map symbols	Suitability as a source of—		Soil features affecting engineering practices	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Hampshire (HaC2, HaD2)	Poor	Poor	Outcrops of limestone and shale bedrock in places.	Shallow over bedrock, which is exposed in places.
Humphreys (HuB, HuC)	Fair to good	Fair to good	Features favorable	Permeable subsoil
Inman (InD3)	Poor	Fair	Bedrock at a depth of 2 to 4 feet.	Rock at a depth of 2 to 4 feet.
Lanton (La)	Poor to fair	Poor	Frequent flooding; seasonal high water table.	Slow permeability
Lee (Le)	Poor to fair	Poor	Frequent flooding; seasonal high water table.	Some areas have a cherty, permeable substratum.
Lobelville (Lh, Lo)	Fair to good	Fair to good	Frequent flooding; seasonal high water table.	Substratum cherty and permeable in places.
Lynnville (Lt, Ly)	Fair to good	Fair to good	Frequent flooding; seasonal high water table.	Possible seepage through permeable subsoil.
Made land (Ma)	Variable	Variable	Bedrock and, in some places, buried debris.	Variable
Maury (MbB, MbC2, MbD2)	Fair	Fair	Features favorable	Limestone bedrock is cavernous in places.
Mercer (McA, McB, McB2)	Fair	Poor	Silty above fragipan; perched water table in wet periods.	Fragipan at a depth of 18 to 30 inches; in some places lower horizons are stratified gravel, sand, and clay.
Mimosa (MmC2, MmD, MmE, MnD3, MnE3, MoC2, MoD2, MpD3).	Poor	Poor	Outcrops of limestone bedrock in places; fine-textured subsoil.	In places limestone bedrock is cavernous; bedrock is exposed in places.
Mimosa-Ashwood very rocky complex (MsD, MsF).	Not suited	Not suited	Shallow over limestone bedrock; outcrops of limestone cover 10 to 50 percent of surface.	Limestone bedrock is cavernous in places; limestone outcrops cover 10 to 50 percent of surface.
Mine pits and dumps (Mt)	Not suited	Poor to fair	Outcrops of bedrock; stones or boulders.	Limestone bedrock is cavernous in places.
Mined land, reclaimed (Mu)	Not suited	Poor to fair	Outcrops of bedrock; stones or boulders in places.	Limestone bedrock is cavernous in places; seepage through permeable substratum.
Mountview (MvB, MvC, MvC3, MwB, MwC2).	Fair to good	Fair	Features favorable	Permeable substratum; excessive seepage.
Newark (Ne)	Poor to fair	Poor to fair	Frequent flooding; seasonal high water table.	Permeable substratum causes excessive seepage in places.

See footnotes at end of table.

interpretations—Continued

Soil features affecting engineering practices—Continued				Limitations for disposal fields for septic tank systems
Farm ponds—Continued	Agricultural drainage	Irrigation	Terraces and diversions [1]	
Embankment				
Clayey subsoil; fair stability but difficult to compact.	Good natural drainage	Slowly permeable, clayey subsoil and moderate available water capacity.	Outcrops of bedrock in places; clayey subsoil.	Moderate: clayey subsoil; rock at a depth of about 4 feet.
Fair stability	Good natural drainage	Well suited	Favorable	Slight.
Good stability	Good natural drainage	Low water capacity	Bedrock	Severe: slow permeability; shallow over rock.
Poor stability; difficult to compact.	Slow permeability; flooding.	Well suited	Level to nearly level	Severe: frequent flooding; seasonal high water table.
Poor to fair stability	Seasonal high water table and flooding; permeable subsoil.	Poorly drained soil	Level	Severe: flooding; seasonal high water table.
Fair to good stability	Seasonal high water table; flooding or ponding; permeable subsoil.	Well suited	Level to nearly level	Severe: flooding; seasonal high water table.
Fair to good stability	Seasonal high water table; flooding; permeable subsoil.	Well suited	Level to nearly level	Severe: flooding; seasonal high water table.
Variable	Variable	Variable; generally not suited.	Variable	Variable.
Fair stability	Good natural drainage	Well suited	Features favorable	Slight.
Poor to fair stability	Perched water table above fragipan in wet periods.	Fragipan limits root zone to upper 2 feet.	Features favorable	Severe: very slowly permeable fragipan at a depth of 18 to 30 inches.
Fair to poor stability	Good natural drainage	Slowly permeable subsoil; moderately low available water capacity.	Clayey subsoil; outcrops of limestone bedrock in places.	Severe: slowly permeable subsoil; limestone outcrops in places.
Clayey soil between rock outcrops.	Good natural drainage	Not suited	Shallow, clayey soil between limestone outcrops.	Severe: shallow to rock and many rock outcrops.
Variable	Variable	Not suited	Not suited	Variable.
Variable	Subject to ponding in places.	Clayey texture retards infiltration.	Outcrops of bedrock, stones, or boulders in places.	Moderate to severe: ponding in places; clayey texture retards permeability.
Very silty in uppermost 2 or 3 feet; fair stability.	Good natural drainage	Well suited	Features favorable	Slight.
Fair to poor stability	Seasonal high water table saturated for long periods; frequent flooding; permeable subsoil.	Saturated for long periods; frequent flooding.	Level	Severe: frequent flooding; saturated for long periods.

TABLE 7—*Engineering*

Soil series and map symbols	Suitability as a source of—		Soil features affecting engineering practices	
	Topsoil	Road fill	Highway location	Farm ponds: Reservoir area
Pickwick (PcB, PcC2, PcC3)	Fair to good	Fair	Features favorable	Permeable subsoil
Rockland (RI)	Not suited	Not suited	Outcrops of limestone; shale or chert covers 50 to 90 percent of surface.	Very rocky; limestone is cavernous in places.
Roellen (Ro)	Poor	Poor	Fine texture; flooding; high shrink-swell potential.	Slow permeability
Settling basins (Se)	Not suited	Not suited	Wetness	Wetness
Staser (Sr, Ss)	Good	Fair to good	Frequent flooding	Possible seepage because of stratified layers of gravel and sand in places.
Stiversville (StC3)	Fair to good	Fair to good	Interbedded sandy limestone and shale bedrock at a depth of 3 to 10 feet.	Bedrock is cavernous in places; excessive seepage through subsoil.
Taft (Ta)	Poor	Poor	Seasonal high water table; ponding; fragipan.	Permeable in places
Talbott (TbB2, TbC2, TcC3)	Poor	Poor to fair	Outcrops of limestone bedrock in places; slowly permeable, clayey subsoil.	In places limestone bedrock is cavernous; bedrock is exposed in places.
Talbott (TrD)	Not suited	Poor to fair	Outcrops of limestone bedrock cover 10 to 50 percent of the surface.	Outcrops of limestone bedrock cover 10 to 50 percent of the surface.
Tupelo (Tu)	Poor	Poor	Flooding; slowly permeable, clayey subsoil.	Slowly permeable, clayey subsoil.
Woolper (Wo)	Poor	Poor	Seasonal high water table; slowly permeable subsoil; flooding.	Underlying limestone is cavernous in places; slowly permeable subsoil.

[1] Suitable slope gradients are assumed.

interpretations—Continued

Soil features affecting engineering practices—Continued				Limitations for disposal fields for septic tank systems
Farm ponds—Continued: Embankment	Agricultural drainage	Irrigation	Terraces and diversions [1]	
Fair to good stability	Good natural drainage	Well suited	Features favorable	Slight.
Very little soil material	Good natural drainage	Not suited	Not suited	Not suited.
Very clayey texture; difficult to compact.	Slowly permeable subsoil; flooding.	Poor drainage	Level to nearly level	Severe: flooding; very slowly permeable, clayey subsoil; poor drainage.
Wetness	Wetness	Wetness	Wetness	Not suited: wetness.
Fair to good stability	Good natural drainage	Well suited	Level to nearly level	Moderate to severe: frequent flooding.
Fair to good stability	Good natural drainage	Well suited	Features favorable	Slight.
Poor stability	Perched water table near the surface; ponding; slowly permeable subsoil.	Fragipan limits root zone to uppermost 18 inches; somewhat poor drainage.	Level	Severe: seasonal high water table; very slow permeability; ponding.
Poor to fair stability; clayey subsoil.	Good natural drainage	Slowly permeable subsoil; moderately low available water capacity.	Outcrops of bedrock in places.	Moderate: slowly permeable subsoil; outcrops of bedrock in places.
Small amount of clayey soil between limestone outcrops.	Good natural drainage	Not suited	Outcrops of limestone cover 10 to 50 percent of surface.	Severe: slowly permeable, clayey soil between limestone outcrops.
Poor to fair stability	Slowly permeable, clayey subsoil.	Clayey subsoil limits root zone to uppermost 15 inches; somewhat poor drainage.	Level to nearly level	Severe: slowly permeable, clayey subsoil.
Fair stability	Slowly permeable, clayey subsoil; occasional flooding.	Well suited	Clayey subsoil	Severe: slowly permeable, clayey subsoil; flooding.

of fill material is available, and if the bedrock is cavernous limestone, the caverns are close to the surface.

The soils that have the least serious limitations affecting their use as disposal fields for septic tank systems are deep, well-drained, rapidly permeable soils on uplands. Soils that are subject to ponding or frequent flooding, or that have a perched water table, have severe limitations for use as disposal fields. Limitations are severe, also, if the soils have a slowly permeable, clayey subsoil or are shallow over bedrock (*14*).

Formation and Classification of the Soils

This section discusses the major factors of soil formation as they relate to the soils of Giles County and briefly explains the system of classifying soils into categories broader than the series.

Factors of Soil Formation

Soil is the product of the interaction of five major factors: parent material, climate, living organisms, topography, and time. The relative importance of each factor differs from place to place. In some places one factor is dominant, and in other places another. The effect of any one of the soil-forming factors is modified to some degree by all of the others.

The influence of climate and that of living organisms have been fairly uniform throughout the county. Variations in parent material, topography, and the length of time that soil-forming factors have been active account for the main differences among the soils of the county.

Parent material

Some of the soils of Giles County formed in material weathered from the underlying rock formations (residuum) and some in material transported by and deposited from water (alluvium). In many places, and especially on the Highland Rim, there is evidence that a thin layer of windblown silt has been deposited over the residuum.

The county is divided physiographically into the Highland Rim and the Central Basin (*2*). The Highland Rim is the remnant of a dissected plain. It consists of ridges that extend into the county from undissected surrounding areas. The rock formations of the Highland Rim are shale and cherty limestone, both resistant to weathering. The Central Basin consists of the stream valleys that separate the ridges of the Highland Rim. The underlying rock is mostly limestone that is nearly free of chert, is medium to high in phosphorus, and is more readily soluble than that of the Highland Rim.

Most of the soils of the Highland Rim formed in residuum weathered from cherty limestone or in loess deposited over such residuum. The soils in the Central Basin formed mostly in alluvium. Those on the first bottoms of the streams formed in young general alluvium, that is, alluvium transported a considerable distance but deposited so recently that soil-forming processes have had little or no effect on it. Those on the terraces formed in old general alluvium, which has been in place long enough to have been altered in varying degrees by soil-forming processes. The soils along small drainageways and in depressions formed in young local alluvium, and those on toe slopes and fans in old local alluvium. Local alluvium has been transported only a short distance.

Climate

Climate directly affects the accumulation of parent material and the development of soil horizons. It influences the speed of the weathering of rocks, the oxidation of minerals, and the processes of leaching, eluviation, and illuviation. Indirectly, climate governs the kinds of plants and animals that can thrive in a particular region.

The climate of Giles County is warm, humid, and temperate. Winters are moderate, and summers are warm. In winter the ground freezes for short periods, but only to a depth of a few inches. The temperature seldom exceeds 100° F. in summer. A mild, humid climate such as this favors rapid physical and chemical decomposition of rocks, minerals, and organic matter. The temperature and rainfall favor intense leaching, eluviation, illuviation, and oxidation. As a result, the soils of the county generally are moderate to low in organic-matter content, low in bases, and strongly oxidized.

The small local differences in climate caused by variations in slope, aspect, and drainage affect soil formation to some extent. On steep slopes facing south and west, the average daily and annual temperature is higher than on slopes facing north and east because the soils are in sunlight for longer periods each day. Because of the higher temperature, decomposition of organic matter and physical and chemical reactions are more rapid. Consequently, soils on slopes facing south and west have slightly thinner horizons, a lower average content of moisture, less organic matter, and generally, a lighter colored surface layer than slopes facing north and east.

Living organisms

Many of the processes by which parent material is transformed into soil are strongly influenced by living organisms, mainly vegetation. Plants make up the major part of organic matter incorporated into a soil. They also play an important role in the transfer of nutrients from one horizon to another. To a degree, plants also alter the soil microclimate. The life processes of animals that live in the soil play a part in converting complex compounds into simple forms and influence many of the physical properties of soils, mainly as a result of ingestion and mixing of soil.

Most of the soils of Giles County developed under a forest of hardwoods mixed with cedars and pines. Differences probably existed in the density of the stands, in the relative proportions of species, and in the kinds of associated ground cover. These differences probably were not sufficient, however, to account for the marked differences in properties among the well-drained, well-developed soils of the county.

Before the area was settled, vast canebrakes flourished along many of the streams (*3*). This fact is significant because, at least in part, it accounts for the large tracts of black, poorly drained and somewhat poorly drained soils in the valleys along the larger streams.

Most of the trees that grow in the county are deciduous. The content of plant nutrients in the leaves and twigs of deciduous trees is higher than that in the needles and twigs of conifers. Organic matter accumulates on the surface in the form of fallen leaves and twigs, and this material is

acted upon by micro-organisms, fungi, earthworms, and other forms of life, and by chemical processes. The warm, humid climate favors rapid decomposition of organic matter, and as a result, most of the soils of the county have a thin A1 horizon that contains a moderate amount of organic matter, an A2 horizon that contains a relatively small amount, and a B horizon that contains very little.

Man's activities have had an important influence on the soils. He has greatly altered the original condition of many of the soils by clearing, draining, and cultivating, and by introducing new species of plants.

Topography

Topography influences or modifies the effects of the other four soil-forming factors. Other things being equal, steeper soils are shallower, have horizons more alike, and are more seriously affected by runoff and erosion than more nearly level soils. The exposure, or aspect, of soils alters, in varying degrees, the microclimate and the kinds and numbers of living organisms in and on the soil.

Topography is determined mainly by the underlying bedrock, by the geologic history of the region, and by stream activity. The present topography of Giles County is a result of the arching of rock strata and the subsequent geologic erosion caused by the Cincinnati anticline. Erosion is still taking place along the anticline, and the Central Basin is gradually being enlarged by the continuing retreat of the Highland Rim escarpment.

The elevation of the Highland Rim ranges from about 1,100 feet in the northern part of the county to about 850 feet in the southern part. The slope ranges from 0 to about 45 percent. The nearly level and gently sloping areas are on the broader ridgetops. The steepest slopes and roughest terrain of the Highland Rim are in areas where dissecting streams have formed deep hollows having steep hillsides and narrow, winding ridgetops. In the Central Basin the elevation ranges from about 600 feet to about 950 feet, and the slope ranges from 0 to 30 percent. Generally, the steepest parts of the Central Basin are the areas just below and adjoining the Highland Rim. The more gently sloping parts are the low ridges and the valley floors along the larger streams of the county.

Time

The time required for a soil to develop depends mainly on the combined influences of the other factors of soil formation. Generally, much more time is required for parent material to accumulate than for horizons to form. Less time is generally required for a soil to develop in a warm, humid region where vegetation is luxuriant than in a dry, cold region where vegetation is sparse. Also, less time is required if the parent material is coarse textured than if it is fine textured.

The soils of Giles County range in age from very young to old. Most of the soils on first bottoms, in depressions, and along small drainageways are young. They consist of recent deposits that have weakly developed or undeveloped profiles. The soils are old, or mature, if they developed in parent material that has been in place a long time and has reached an approximate state of equilibrium with its environment. Mature soils have thicker, more numerous genetically related horizons and more strongly weathered parent material than do younger soils.

Classification of the Soils

Two systems of classifying soils have been used in the United States in recent years. The older system was adopted in 1938 and revised later (*11*). The system currently used, and that discussed in this section, is that adopted for general use by the National Cooperative Soil Survey in 1965 and supplemented in March 1967. This system is under continual study. Therefore, readers interested in the development of the system should search for the latest literature available (*6*, *13*).

The current system has six categories. Beginning with the most inclusive, the categories are the order, the suborder, the great group, the subgroup, the family, and the series. Table 8 gives the classification of the soils of Giles County according to these categories. Placement of some of the series, particularly in families, may change as more precise information becomes available.

New soil series are established and concepts of some of the established series, especially the older ones, must be revised in the course of the nationwide soil survey program. A proposed series is given tentative status during the time its concepts are being studied at State, regional, and national levels of responsibility for soil classification. The Lynnville series, mapped in this county, had tentative status at the time this survey was sent to the printer.

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TABLE 8.—*Classification of soils in Giles County*

Series	Family	Subgroup and great group	Suborder	Order
Armour	Fine-silty, mixed, thermic	Humic Hapludults	Udult	Ultisol.
Ashwood	Fine, mixed, thermic	Typic Argiudoll	Udoll	Mollisol.
Bodine	Loamy-skeletal, siliceous, thermic	Typic Paleudult	Udult	Ultisol.
Braxton	Fine, mixed, thermic	Mollic Paleudalf	Udalf	Alfisol.
Culleoka	Fine-loamy, mixed, mesic	Ultic Hapludalf	Udalf	Alfisol.
Dellrose	Fine-loamy, mixed, thermic	Humic Hapludult	Udult	Ultisol.
Dickson	Fine-silty, siliceous, thermic	Ochreptic Fragiudult	Udult	Ultisol.
Donerail	Fine, mixed, mesic	Mollic Hapludalf	Udalf	Alfisol.
Dowellton	Fine, mixed, montmorillonitic, thermic	Vertic Ochraqualf	Aqualf	Alfisol.
Etowah	Fine-silty, siliceous, thermic	Humic Paleudult	Udult	Ultisol.
Fullerton	Clayey, kaolinitic, thermic	Typic Paleudult	Udult	Ultisol.
Godwin	Fine, mixed, noncalcareous, thermic	Cumulic Haplaquoll	Aquoll	Mollisol.
Greendale	Fine-loamy, siliceous, mesic	Fluventic Dystrochrept	Ochrept	Inceptisol.
Guthrie	Fine-silty, siliceous, thermic	Typic Fragiaquult	Aquult	Ultisol.
Hampshire	Fine, mixed, thermic	Ultic Hapludalf	Udalf	Alfisol.
Humphreys	Fine-loamy, mixed, thermic	Humic Hapludult	Udult	Ultisol.
Inman	Fine, mixed, thermic	Typic Hapludalf	Udalf	Alfisol.
Lanton	Fine-silty, mixed, noncalcareous, thermic	Cumulic Haplaquoll	Aquoll	Mollisol.
Lee	Fine-loamy, siliceous, acid, thermic	Fluventic Haplaquept	Aquept	Inceptisol.
Lobelville	Fine-loamy, siliceous, thermic	Aquic Fluventic Dystrochrept.	Ochrept	Inceptisol.
Lynnville	Fine-loamy, mixed, thermic	Aquic Fluventic Hapludoll.	Udoll	Mollisol.
Maury	Clayey, mixed, mesic	Humic Paleudult	Udult	Ultisol.
Mercer	Fine-silty, mixed, mesic	Typic Fragiudalf	Udalf	Alfisol.
Mimosa	Fine, mixed, thermic	Mollic Hapludalf	Udalf	Alfisol.
Mountview	Fine-silty, siliceous, thermic	Typic Paleudult	Udult	Ultisol.
Newark	Fine-silty, mixed, thermic	Aeric Fluventic Haplaquept	Aquept	Inceptisol.
Pickwick	Fine-silty, mixed, thermic	Typic Paleudult	Udult	Ultisol.
Roellen	Fine, montmorillonitic, noncalcareous, thermic	Vertic Haplaquoll	Aquoll	Mollisol.
Staser	Fine-loamy, mixed, thermic	Fluventic Hapludoll	Udoll	Mollisol.
Stiversville	Fine-loamy, mixed, thermic	Ultic Hapludalf	Udalf	Alfisol.
Taft	Fine-silty, siliceous, thermic	Aqueptic Fragiudult	Udult	Ulitsol.
Talbott	Fine, mixed, thermic	Ultic Hapludalf	Udalf	Alfisol.
Tupelo	Fine, mixed, thermic	Aquic Hapludalf	Udalf	Alfisol.
Woolper	Fine, mixed, mesic	Typic Argiudoll	Udoll	Mollisol.

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Glossary

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Chert. A structureless form of silica, closely related to flint, which breaks into angular fragments. Soils developed from impure limestone containing fragments of chert and having abundant quantities of these fragments in the soil mass are called cherty soils.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Colluvium. Soil material, rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; will not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Evapotranspiration. The loss of moisture by evaporation and by transpiration through the leaves and stems of plants. Potential evapotranspiration is an estimate of the amount of moisture that will be lost from a soil that has a good cover of growing plants. Actual evapotranspiration is the actual amount of moisture lost; it is the same as potential evapotranspiration when the soil is at field moisture capacity, but is less when the

soil is partly dry. As the soil dries, it holds moisture more tightly and the rate of evapotranspiration is slower.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

Illuviation. The accumulation of material in a soil horizon through the deposition of suspended material and organic matter removed from horizons above. Since part of the fine clay in the B horizon (or subsoil) of many soils has moved into the B horizon from the A horizon above, the B horizon is called an illuvial horizon.

Loess. A fine-grained eolian deposit consisting dominantly of silt-sized particles.

Microclimate. Local climatic conditions, brought about by the changes in the general climate resulting from local differences in elevation and exposure.

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few*, *common*, and *many;* size—*fine*, *medium*, and *coarse;* and contrast—*faint*, *distinct*, and *prominent*. The size measurements are these: *fine*, less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium*, ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse*, more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Parent material (soil). The horizon of weathered rock or partly weathered soil material from which soil has formed; horizon C in the soil profile.

Permeability. The quality of a soil horizon that enables water or air to move through it. Terms used to describe permeability are as follows: *very slow*, *slow*, *moderately slow*, *moderate*, *moderately rapid*, *rapid*, and *very rapid*.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Residuum. Unconsolidated, partly weathered mineral material that accumulates over disintegrating solid rock. Residuum is not soil but is frequently the material in which a soil forms.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Surface layer. A term used in nontechnical soil descriptions for one or more upper layers of soil. Includes the A horizon and part of the B horizon; has no depth limit.

Terrace (geological). An old alluvial plain, ordinarily flat or undulating, bordering a river, lake, or the sea. Stream terraces are frequently called second bottoms, as contrasted to flood plains, and are seldom subject to overflow. Marine terraces were deposited by the sea and are generally wide.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Topography. The shape of the ground surface, such as hills, mountains, or plains. Steep topography indicates steep slopes or hilly land; flat topography indicates flat land with minor undulations and gentle slopes.

Upland (geologic). Land consisting of material unworked by water in recent geologic time and lying, in general, at a higher elevation than the alluvial plain or stream terrace. Land above the lowlands along rivers.

GUIDE TO MAPPING UNITS

[For a full description of a mapping unit, read both the description of the mapping unit and the description of the soil series to which the mapping unit belongs.

[See table 2, page 9, for approximate acreage and proportionate extent of the soils. See table 3, page 43, for estimated yields per acre of the principal crops. See table 4, page 46, for descriptions of woodland groups. For facts about the engineering properties of the soils, turn to the section beginning on page 52]

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group	Wildlife group	
			Symbol	Page	Number	Number	Page
ArA	Armour silt loam, 0 to 2 percent slopes	10	I-1	36	2	2	49
ArB	Armour silt loam, 2 to 5 percent slopes	10	IIe-1	37	2	2	49
ArC2	Armour silt loam, 5 to 12 percent slopes, eroded	10	IIIe-1	38	2	2	49
AsC	Ashwood silty clay loam, 5 to 12 percent slopes	10	IVe-4	40	4	3	52
AsD	Ashwood silty clay loam, 12 to 20 percent slopes	10	VIe-2	41	4	3	52
BoD	Bodine cherty silt loam, 5 to 20 percent slopes	11	VIs-1	41	3	5	52
BoF	Bodine cherty silt loam, 20 to 45 percent slopes	11	VIIs-1	42	3	5	52
BrB2	Braxton cherty silt loam, 2 to 5 percent slopes, eroded	12	IIIe-3	39	4	3	52
BrC2	Braxton cherty silt loam, 5 to 12 percent slopes, eroded	12	IIIe-3	39	4	3	52
BrD2	Braxton cherty silt loam, 12 to 20 percent slopes, eroded	12	IVe-3	40	4	3	52
BsC3	Braxton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	12	IVe-3	40	4	3	52
BsD3	Braxton cherty silty clay loam, 12 to 20 percent slopes, severely eroded	12	VIe-2	41	4	3	52
BtC3	Braxton silty clay loam, 5 to 12 percent slopes, severely eroded	12	IVe-1	40	4	3	52
BtD3	Braxton silty clay loam, 12 to 20 percent slopes, severely eroded	12	VIe-2	41	4	3	52
CuC2	Culleoka loam, 5 to 12 percent slopes, eroded	13	IIIe-1	38	2	2	49
CuC3	Culleoka loam, 5 to 12 percent slopes, severely eroded	13	IVe-1	40	2	2	49
CuD2	Culleoka loam, 12 to 20 percent slopes, eroded	13	IVe-1	40	2	2	49
CuD3	Culleoka loam, 12 to 20 percent slopes, severely eroded	13	VIe-1	41	2	2	49
CuE	Culleoka loam, 20 to 35 percent slopes	13	VIe-1	41	2	2	49
CuE3	Culleoka loam, 20 to 35 percent slopes, severely eroded	14	VIe-1	41	2	2	49
CyE	Culleoka flaggy loam, 15 to 35 percent slopes	14	VIe-1	41	2	2	49
DeB	Dellrose cherty silt loam, 2 to 5 percent slopes	14	IIe-3	37	2	2	49
DeC	Dellrose cherty silt loam, 5 to 12 percent slopes	14	IIIe-2	39	2	2	49
DeC3	Dellrose cherty silt loam, 5 to 12 percent slopes, severely eroded	14	IVe-2	40	2	2	49
DeD	Dellrose cherty silt loam, 12 to 20 percent slopes	15	IVe-2	40	2	2	49
DeD3	Dellrose cherty silt loam, 12 to 20 percent slopes, severely eroded	15	VIe-1	41	2	2	49
DeE	Dellrose cherty silt loam, 20 to 30 percent slopes	15	VIe-1	41	2	2	49
DeE3	Dellrose cherty silt loam, 20 to 30 percent slopes, severely eroded	15	VIe-1	41	2	2	49
DeF	Dellrose cherty silt loam, 30 to 45 percent slopes	15	VIe-1	41	2	2	49
DlD	Dellrose coarse cherty silt loam, 12 to 20 percent slopes	15	VIe-1	41	2	2	49
DlF	Dellrose coarse cherty silt loam, 20 to 45 percent slopes	15	VIIe-1	42	2	2	49
DnB	Dickson silt loam, 2 to 5 percent slopes	16	IIe-2	37	5	6	52
DoB	Donerail silt loam, 2 to 5 percent slopes	16	IIe-2	37	5	6	52
Dw	Dowellton silt loam	17	IVw-1	41	7	8	52
EtC	Etowah cherty silt loam, 5 to 12 percent slopes	17	IIIe-2	39	2	2	49
EtD	Etowah cherty silt loam, 12 to 20 percent slopes	17	IVe-2	40	2	2	49
FaB	Fullerton cherty silt loam, 2 to 5 percent slopes	18	IIIe-3	39	3	5	52
FaC	Fullerton cherty silt loam, 5 to 12 percent slopes	18	IIIe-3	39	3	5	52
FaD	Fullerton cherty silt loam, 12 to 20 percent slopes	18	IVe-3	40	3	5	52
FaE	Fullerton cherty silt loam, 20 to 30 percent slopes	18	VIe-2	41	3	5	52
FaF	Fullerton cherty silt loam, 30 to 40 percent slopes	18	VIIe-1	42	3	5	52

GUIDE TO MAPPING UNITS--CONTINUED

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group	Wildlife group	
			Symbol	Page	Number	Number	Page
FcC3	Fullerton cherty silty clay loam, 5 to 12 percent slopes, severely eroded	18	IVe-3	40	3	5	52
FcD3	Fullerton cherty silty clay loam, 12 to 20 percent slopes, severely eroded	18	VIe-2	41	3	5	52
FcE3	Fullerton cherty silty clay loam, 20 to 30 percent slopes, severely eroded	19	VIe-2	41	3	5	52
Go	Godwin silt loam	19	IIw-1	38	6	7	52
Gr	Greendale cherty silt loam	20	IIs-1	38	1	1	49
Gs	Greendale silt loam	20	I-1	36	1	1	49
Gu	Gullied land	20	VIIe-1	42	8	10	52
Gw	Guthrie silt loam	20	IVw-1	41	7	8	52
HaC2	Hampshire silt loam, 3 to 12 percent slopes, eroded	21	IVe-4	40	4	3	52
HaD2	Hampshire silt loam, 12 to 20 percent slopes, eroded	21	VIe-2	41	4	3	52
HuB	Humphreys cherty silt loam, 2 to 5 percent slopes	21	IIe-3	37	2	2	49
HuC	Humphreys cherty silt loam, 5 to 12 percent slopes	22	IIIe-2	39	2	2	49
InD3	Inman silty clay, 10 to 25 percent slopes, severely eroded	22	VIe-2	41	4	3	52
La	Lanton silt loam	22	IIw-1	38	6	7	52
Le	Lee silt loam	23	IIIw-1	39	6	7	52
Lh	Lobelville cherty silt loam	23	IIs-1	38	1	1	49
Lo	Lobelville silt loam	23	I-2	37	1	1	49
Lt	Lynnville cherty silt loam	24	IIs-1	38	1	1	49
Ly	Lynnville silt loam	24	I-2	37	1	1	49
Ma	Made land	25	(1/)	--	8	10	52
MbB	Maury silt loam, 2 to 5 percent slopes	25	IIe-1	37	2	2	49
MbC2	Maury silt loam, 5 to 12 percent slopes, eroded	25	IIIe-1	38	2	2	49
MbD2	Maury silt loam, 12 to 20 percent slopes, eroded	25	IVe-1	40	2	2	49
McA	Mercer silt loam, 0 to 2 percent slopes	26	IIw-2	38	5	6	52
McB	Mercer silt loam, 2 to 5 percent slopes	26	IIe-2	37	5	6	52
McB2	Mercer silt loam, 2 to 5 percent slopes, eroded	26	IIe-2	37	5	6	52
MoC2	Mimosa silt loam, 4 to 12 percent slopes, eroded	27	IVe-4	40	4	3	52
MoD2	Mimosa silt loam, 12 to 20 percent slopes, eroded	27	VIe-2	41	4	3	52
MmC2	Mimosa cherty silt loam, 5 to 12 percent slopes, eroded	27	IVe-4	40	4	3	52
MmD	Mimosa cherty silt loam, 12 to 20 percent slopes	27	VIe-2	41	4	3	52
MmE	Mimosa cherty silt loam, 20 to 30 percent slopes	27	VIe-2	41	4	3	52
MnD3	Mimosa cherty silty clay, 5 to 20 percent slopes, severely eroded	27	VIe-2	41	4	3	52
MnE3	Mimosa cherty silty clay, 20 to 30 percent slopes, severely eroded	28	VIIe-1	42	4	3	52
MpD3	Mimosa silty clay, 5 to 20 percent slopes, severely eroded	28	VIe-2	41	4	3	52
MsD	Mimosa-Ashwood very rocky complex, 5 to 20 percent slopes	28	VIs-2	41	8	4	52
MsF	Mimosa-Ashwood very rocky complex, 20 to 40 percent slopes	28	VIIs-1	42	8	4	52
Mt	Mine pits and dumps	28	(1/)	--	8	10	52
Mu	Mined land, reclaimed	28	(1/)	--	8	2	49
MvB	Mountview cherty silt loam, 2 to 5 percent slopes	29	IIe-3	37	2	2	49
MvC	Mountview cherty silt loam, 5 to 12 percent slopes	30	IIIe-2	39	2	2	49
MvC3	Mountview cherty silt loam, 5 to 12 percent slopes, severely eroded	30	IVe-2	40	2	2	49
MwB	Mountview silt loam, 2 to 5 percent slopes	29	IIe-1	37	2	2	49
MwC2	Mountview silt loam, 5 to 12 percent slopes, eroded	29	IIIe-1	38	2	2	49
Ne	Newark silt loam	30	IIw-1	38	6	7	52
PcB	Pickwick silt loam, 2 to 5 percent slopes	31	IIe-1	37	2	2	49
PcC2	Pickwick silt loam, 5 to 12 percent slopes, eroded	31	IIIe-1	38	2	2	49
PcC3	Pickwick silt loam, 5 to 12 percent slopes, severely eroded	31	IVe-1	40	2	2	49
Rl	Rockland	31	VIIs-1	42	8	4	52
Ro	Roellen silty clay loam	32	IIIw-2	39	6	9	52

GUIDE TO MAPPING UNITS--CONTINUED

Map symbol	Mapping unit	Described on page	Capability unit		Woodland group	Wildlife group	
			Symbol	Page	Number	Number	Page
Se	Settling basins	32	(1/)	--	8	10	52
Sr	Staser cherty silt loam	32	IIs-1	38	1	1	49
Ss	Staser silt loam	32	I-1	36	1	1	49
StC3	Stiversville silt loam, 5 to 12 percent slopes, severely eroded	33	IVe-1	40	2	2	49
Ta	Taft silt loam	33	IIIw-3	40	7	8	52
TbB2	Talbott silt loam, 2 to 5 percent slopes, eroded	34	IVe-4	40	4	3	52
TbC2	Talbott silt loam, 5 to 12 percent slopes, eroded	34	IVe-4	40	4	3	52
TcC3	Talbott silty clay, 3 to 12 percent slopes, severely eroded	34	VIe-2	41	4	3	52
TrD	Talbott very rocky complex, 2 to 20 percent slopes	34	VIs-2	41	8	4	52
Tu	Tupelo silt loam	35	IIIw-3	40	7	8	52
Wo	Woolper silty clay loam	35	IIs-1	38	1	2	49

1/ Not placed in a capability unit.